DOCUMENT RESUME

ED 432 719 CG 029 449

AUTHOR Wallisch, Lynn S.; Liu, Liang Y.

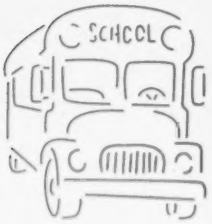
TITLE Texas School Survey of Substance Use among Students: Grades 4-6, 1998.

INSTITUTION Texas State Commission on Alcohol and Drug Abuse, Austin.
PUB DATE 1999-05-00
NOTE 65p.; For the Grade 7-12 survey, see ED 429 256.
AVAILABLE FROM Texas Commission on Alcohol and Drug Abuse, P.O. Box 80529, Austin, TX 78708-0529; Tel.: 512-349-6600; Tel.: 800-832-9623 (Toll Free); Web site: www.tcada.state.tx.us
PUB TYPE Numerical/Quantitative Data (110) -- Reports - Research (143) -- Tests/Questionnaires (160)
EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Academic Achievement; Access to Information; Behavior Problems; Demography; Drinking; *Drug Use; Family Structure; High Risk Students; Intermediate Grades; Marijuana; Parent Attitudes; Peer Influence; Perception; questionnaires; Racial Differences; *School Surveys; Sex Differences; Smoking; Socioeconomic Status; Student Surveys; Tables (Data)
IDENTIFIERS Inhalants; Pattern Analysis; Protective Factors; *Texas

ABSTRACT

This booklet reports on the results of the 1998 Texas School Survey of Substance Use among Students: Grades 4-6. The statewide school survey monitors trends in substance use among public school students, identifies emerging problem areas, and serves as a basis of comparison for local school surveys which are conducted annually by various school districts throughout the state. The 1998 survey results were based on responses from 91,168 students from 66 participating school districts in the state. In addition to the prevalence of alcohol and drug use, this study addresses aspects of peer, parent, and school influences on substance use behaviors at a very early age when prevention and intervention is most effective. Chapter 1 is concerned with patterns of substance use and covers tobacco, alcohol, inhalants, and marijuana. Chapter 2 provides demographic correlates of substance use. Chapter 3 gives protective and risk factors related to substance use. Appendix A is the survey instrument; Appendix B contains 15 prevalence tables; Appendix C contains 5 additional tables; and Appendix D is a description and history of the survey and describes its limitations. (MKA)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****



1998 Texas School Survey of Substance Use Among Students: Grades 4–6

ED 432 719

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

A CARR

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

CG029449

BEST COPY AVAILABLE

1998 Texas School Survey of Substance Use Among Students: Grades 4–6

by

Lynn S. Wallisch, Ph.D.

Liang Y. Liu, Ph.D.

Texas Commission on
Alcohol and Drug Abuse
www.tcada.state.tx.us

Acknowledgements

Because this volume represents over a decade of work, preparing this acknowledgement involves more than just thanking the people who were involved in the production of this one publication. We would first like to thank the 2.5 million students and 693 school districts who have participated in this survey since its inception in 1988. Our special thanks go to the 91,168 students in 64 school districts who participated in the elementary survey in 1998.

We would also like to thank the Texas Education Agency and all the drug education and crime prevention staff in the central office and in the regional Education Service Centers who have supported this project from the beginning. Special thanks should go to Kay Beth Stavely for her support of this survey.

The Texas School Survey has been a joint project with the Public Policy Research Institute (PPRI) at Texas A&M University. James Dyer, Ph.D., has been the key to this project since the beginning, and we would also like to thank Ross Blakely, who is the Texas School Survey coordinator, for managing the project. In addition, we want to thank Laurie Kirts, Frank P. Gaydos, Lisa Odell, Ph.D., Bohdini Jayasuriya, Ph.D., Melissa Tackett-Gibson, William A. Coats, Grant Gossiott, and Stephanie Smith for their contributions to PPRI's efforts on the survey.

At the Texas Commission on Alcohol and Drug Abuse (TCADA), we want to recognize Richard Spence, Ph.D., who was a co-author of the 1988 publication and whose strong support has kept this project on track and has helped make it the major survey that it has become. We thank Jane Maxwell, Ph.D., who read and commented on the drafts. Lastly, we want to especially acknowledge the work of Jill Robinson and Amy T. Carr, who coordinated the print and electronic production of this volume.

© May 1999, Texas Commission on Alcohol and Drug Abuse (TCADA), Austin, Texas. TCADA grants full permission to reproduce and distribute any part of this document for non-commercial use. Appropriate credit is appreciated. TCADA is a state agency headed by six commissioners appointed by the governor. TCADA provides educational materials on substance use, develops prevention, intervention, and treatment programs, and conducts studies on the problems of substance use in Texas.

Texas Commission on Alcohol and Drug Abuse
PO Box 80529 • Austin, Texas 78708-0529
9001 N. IH 35, Ste. 105 • Austin, Texas 78753-5233
(512) 349-6600 • (800) 832-9623
Web site: www.tcada.state.tx.us

This document was printed on recycled paper.

Table of Contents

Executive Summary 1

Chapter 1. Patterns of Substance Use 7
Introduction 7
Terminology 7
Overview of Substance Use 8
Tobacco 9
Types of Tobacco Products Used 9
Demographic Correlates of Tobacco Use 10
Trends in Tobacco Use 10
Alcohol 10
Consumption of Specific Beverages 10
Heavy Alcohol Consumption 10
Demographic Correlates of Alcohol Use 12
Trends in Alcohol Use 12
Inhalants 13
Specific Inhalants 14
Use of Multiple Inhalants 14
Demographic Correlates of Inhalant Use 14
Trends in Inhalant Use 15
Marijuana 15
Demographic Correlates of Marijuana Use 15
Trends in Marijuana Use 16
Patterns of Multiple Substance Use 16
Age at First Use of Substances 16

Chapter 2. Demographic Correlates of Substance Use 19
Introduction 19
Gender 19
Race/Ethnicity 20
Family Structure 21
Socioeconomic Status 22
Length of Time in School District 23
Grade Level 23
School Grades 23

Chapter 3. Protective and Risk Factors Related to Substance Use 25
Introduction 25
School Problems 25
Peer Use 25
Perceived Availability 26
Perceived Danger 27
Actual Use of Substances 28
Changes in Perceived Danger 28
Parental Attitudes 29
Sources of Information About Alcohol and Drugs 31

Chapter 4. Conclusions 33
Comparison to National Survey 34
Recommendations 35

Appendix A. Survey Instrument 37
Appendix B. Prevalence Tables 43
Appendix C. Additional Tables 53
Appendix D. Description of Survey and Limitations 59

1998 Texas School Survey of Substance Use Among Students: Grades 4–6

Executive Summary

The 1998 survey results were based on responses from 91,168 students in grades four through six from 66 participating school districts in the state.

In the spring of 1998, the Texas Commission on Alcohol and Drug Abuse, in conjunction with the Public Policy Research Institute (PPRI) at Texas A&M University, conducted the fifth statewide survey of drug and alcohol use among Texas students in elementary schools. The statewide school survey monitors trends in substance use among public school students, identifies emerging problem areas, and serves as a basis of comparison for local school surveys which are conducted annually by various school districts throughout the state.

Although the survey of secondary students began in 1988, statewide data on elementary students was not gathered until 1990. The 1998 survey results were based on responses from 91,168 students in grades four through six from 66 participating school districts in the state. In addition to the prevalence patterns of alcohol and drug use, this study addresses aspects of peer, parent, and school influences on substance use behaviors at a very early age when prevention and intervention is most effective.

Patterns of Substance Use

- In 1998, about 26 percent of all elementary students in Texas had used tobacco, alcohol, inhalants, and/or marijuana during the past school year; 36 percent reported using some type of substance in their lifetime. This translates into a figure of about 324,000 elementary students in Texas who have tried substances and about 234,000 who have used them during the past school year.
- Substance use increased with grade level, especially between fifth and sixth grades. About 20 percent of fourth graders, 25 percent of fifth graders, and 34 percent of sixth graders had used a substance in the past school year (Figure 1).

Figure 1. Percentage of Texas Elementary Students Who Used Substances in the Past School Year, by Grade: 1998

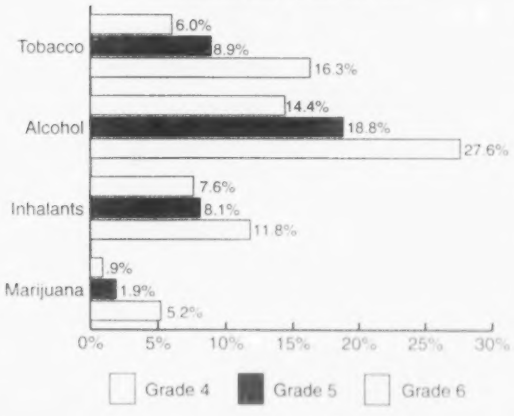
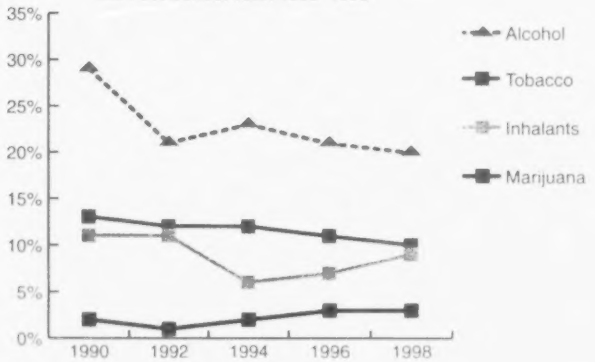


Figure 2. Percentage of Texas Elementary Students Who Used Selected Substances in the Past School Year: 1990–1998



BEST COPY AVAILABLE

About 26 percent of elementary students reported using tobacco, alcohol, inhalants, and/or marijuana in the past school year

- Alcohol was the most widely used substance among elementary students, followed by tobacco. Marijuana was used by only a small percentage of elementary students, but rates of use have increased since 1992 (Figure 2).
- Most students who had used any substance had used only one of the four kinds of substances asked about. About one-third of elementary students who had used substances had used more than one kind. The most common pattern of multiple substance use was use of both tobacco and alcohol.
- Past-year rates of smoking and drinking have declined slightly over the past few surveys, although heavy drinking of wine coolers has increased among older elementary students. Past-year marijuana use, on the other hand, almost tripled between 1992 and 1996 and the high level of use continued into 1998.
- A dramatic increase in inhalant use was also observed between 1996 and 1998. At the same time, the percentage of elementary students who considered inhalant use to be very dangerous decreased.
- Since 1990, there has been little change in the average age at first use of any substance, except for a drop of about one year in the age at first use of beer that occurred between 1992 and 1994.

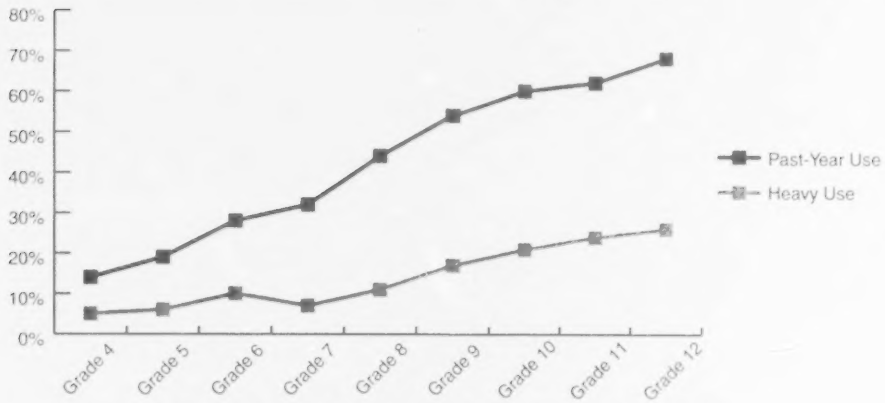
Tobacco

- Almost 10 percent of elementary students had smoked cigarettes during the past school year, and 2 percent had used chewing tobacco or snuff. About 24 percent of students had smoked cigarettes in their lifetime, and 5 percent had ever used smokeless tobacco.
- Rates of lifetime and past-year use of tobacco by elementary students have declined almost steadily since 1990. The largest declines were seen among male students and Anglo students.

Alcohol

- Some 30 percent of elementary students had ever tried alcohol and 20 percent had tried it during the past school year.
- The percentage of students who had drunk alcohol in the past school year almost doubled between fourth and sixth grades and continued to rise through the twelfth grade (Figure 3).
- Over half of all elementary students who had ever used alcohol had first started drinking when they were nine years old or younger.
- Beer and wine coolers were the alcoholic beverages most often consumed, with about 12 percent of elementary students having consumed each of them in the past school year. About 9 percent reporting drinking wine and 5 percent reported drinking liquor during that year.
- Consumption of two or more drinks in a row was considered to be heavy alcohol use among these young students. About 16 percent of all elementary students had drunk two or more beers or wine coolers during the past school year.
- Past-year alcohol use and heavy drinking levels declined between 1990 and 1992 and have remained fairly stable since 1992.

Figure 3. Percentage of Elementary and Secondary Students Who Drank Alcohol in the Past School Year and Who Drank Heavily, by Grade: 1998



Note: Heavy alcohol use was considered to be two or more beers in a row for elementary students (grades 4–6) and five or more beers in a row for secondary students (grades 7–12).

Inhalants

- About 12 percent of elementary students had used inhalants during their lifetimes and about 9 percent had used them in the past school year. Correction fluid, closely followed by glue and spray paint, were the most commonly used inhalants.
- Between 1990 and 1994, inhalant use dropped by half, only to rise again by 1998 to almost as high levels as reported in 1990. Since 1996, past-year inhalant use has risen by over 2 percentage points, making it the only substance whose use had increased since the last survey.

Marijuana

- Fewer than 4 percent of elementary students had ever tried marijuana, and about 2.6 percent had used it within the past school year. The age of first use for trying marijuana was older than for any of the other substances asked about in the survey.
- Past-year marijuana use dropped between 1990 and 1992, but then rose steadily until 1996; in 1998, past-year rates were almost identical to those of 1996.

Demographic Correlates of Substance Use

Gender

- Male elementary students were more likely than female students to have used all substances. However, as students got older, girls increased their substance use at a faster rate than boys.
- Between 1996 and 1998, as rates of past-year use of all substances except inhalants decreased for boys, they remained stable or increased for girls.
- The pattern of male use being higher than female substance use persisted from the elementary grades throughout high school, although substance use prevalence rates became more similar in the later grades, with the exception of inhalant use.

Race/Ethnicity

- Hispanic elementary students reported the highest rates of past-year use of all substances; only their use of alcohol was equaled by African-American students.
- Over the past few surveys, Anglo students have been increasing their rates of substance use more rapidly than other students, leading to more similar rates of substance use among all students.

BEST COPY AVAILABLE

Family Structure

- Elementary students who did not live with both parents were about one-and-a-half to two times as likely as those living with both parents to have used tobacco, alcohol, or marijuana. There was little difference in inhalant use by family structure.

Socio-Economic Status

- Elementary students who had at least one college-educated parent were less likely to have used substances than those who did not.
- Students who lived in lower-income families were more likely to have used substances than those from higher-income families.

School Grades

- Elementary students whose average grades were C's or lower were two to three times more likely to have used substances than those who averaged A's or B's.

Protective and Risk Factors

School Problems

- In 1998, about 4 percent of all elementary students said that they had skipped school at least once in the past year without a parent's consent, and 32 percent said they had been sent to the principal because of their conduct problems during that year.
- Students who had skipped school and/or been sent to the principal's office were much more likely to have used substances than other students (Figure 4).

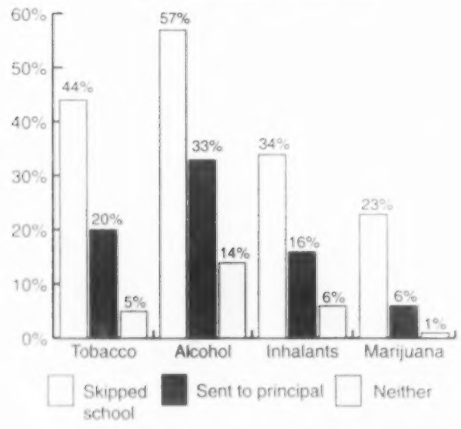
Peer Use

- Thirty percent of elementary students reported that some or most of their close friends used tobacco, 35 percent said that they drank alcohol, 14 percent said that they used inhalants, and 12 percent said that they used marijuana.
- Reported rates of peer use were in general much higher than reported personal use among students.
- Although males had a higher personal use of substances than females, boys and girls were equally likely to report that their close friends used substances.

Perceived Availability

- About 33 percent of all elementary students said that they had been offered alcohol and 28 percent reported that they had been offered tobacco. Some 10 percent had been offered inhalants and 10 percent had been offered marijuana.

Figure 4. Percentage of Texas Elementary Students Who Used Substances in the Past School Year, by School Misconduct: 1998



- While only 4 percent of students had ever tried marijuana, about one-third of those who had been offered marijuana had ever tried it.
- Since 1994, the perceived availability of tobacco and alcohol has declined slightly, while the availability of inhalants and marijuana has increased.

Perceived Danger

- In 1998, about 67 percent of all elementary students thought that tobacco was very dangerous to use, 67 percent believed that alcohol was very dangerous, 63 percent said that inhalants were very dangerous, and 78 percent thought it very dangerous to use marijuana.
- For tobacco and alcohol, perceived danger decreased with grade level, while the perceived danger of inhalants and marijuana was similar for all elementary grades.
- Students who reported that a substance was very dangerous were less likely to have used that substance than those who believed the substance was not dangerous.
- There has been a small decline since 1992 in the perception that substances are dangerous. This has been especially true for marijuana, where only 78 percent of sixth graders thought that it was very dangerous in 1998 as compared to 92 percent in 1992, and there was a similar, though smaller, decline for students in the other grades.

Parental Attitudes

- Among students in elementary school, about 16 percent were not sure how their parents felt about children their age drinking beer, and 13 percent did not know how their parents felt about marijuana use.
- Almost all (96 and 97 percent respectively) students who did know their parents' attitudes towards beer and marijuana use said that their parents disapproved of such use by youth their age.

Sources of Information

- Some 92 percent of elementary students said they had gotten some kind of information on drugs or alcohol from a school source during the past year. There has been little difference in this percentage since 1990.

Comparison to a National Survey

- The results of the first national survey of drug use among students in grades four through six, conducted in 1997-98 by PRIDE,[1] revealed that Texas elementary students had higher levels of past-year use than students nationally.

Recommendations

- Despite the fact that any substance use among young people is troubling, in 1998, about 74 percent of elementary students reported being completely drug-free during the past year, meaning that they did not use tobacco, alcohol, inhalants, or marijuana during the past school year. This was only about 1 percentage point less than the number in 1996, which reflects the rise in inhalant use. A goal should be to increase the number who remain drug-free by reducing the risk factors and enhancing the resiliency factors that have been noted in this survey and elsewhere.
- Since substance use among youths is affected by a wide variety of factors, prevention and intervention efforts must extend their emphasis beyond the individual youth to include parents and schools, and must address social factors, such as interpersonal relationships, the value of school attendance and educational success, and resistance to peer pressure.

A goal should be that 100 percent of Texas students in grades K-12 receive comprehensive alcohol, tobacco, and other drug education that has been proven to be effective.

- Law enforcement agencies, as well as community groups, should continue to work to enforce prohibitions on the sale of tobacco and alcohol to minors.
- Parents can play a major role in preventing substance abuse by initiating discussion with their children early in the elementary grades and by making sure that their children have no doubt about the parents' disapproval of substance use.
- Given the association observed between making low academic grades and using substances, children should be encouraged to work hard in school and should receive whatever remedial help they need. Yet all students are potentially vulnerable, so classroom drug education and prevention programs should be extended to all students.
- A goal should be that 100 percent of Texas students in grades K-12 receive comprehensive alcohol, tobacco, and other drug education that has been proven to be effective.[2]

Resources

- The National Institute on Drug Abuse (NIDA) has released research showing the protective impact of scientifically proven and effective prevention programs. NIDA's *Preventing Drug Use Among Children and Adolescents* provides information on prevention principles for communities, schools, and families.[2]
- The Texas Commission on Alcohol and Drug Abuse provides resources and information to help counselors, addiction professionals, educators, and parents who are interested in finding out more about substance abuse and ways to prevent substance abuse among Texas youth. The TCADA Web site is accessible 24-hours a day at www.tcada.state.tx.us and includes recent information on prevention, information on drugs of abuse, research and epidemiology, publications, library and LitCenter services, and training opportunities.

Endnotes

1. The results of the PRIDE survey can be found on their Web site at www.prideusa.org.
2. Z. L. Sloboda and Susan David. *Preventing Drug Use Among Children and Adolescents*. Rockville, MD: National Institute on Drug Abuse, 1997, pp. 19-29.

Appendix A. Prevalence and Recency of Substance Use, by Grade: Texas Elementary Students: 1990, 1992, 1994, 1996, and 1998

	Ever Used 1990	Ever Used 1992	Ever Used 1994	Ever Used 1996	Ever Used 1998
TOBACCO	**21.1%**	**18.8%**	**18.9%**	**17.1%**	**16.3%**
Grade 4	13.3%	10.8%	11.1%	9.3%	9.3%
Grade 5	19.8%	18.3%	17.7%	16.3%	15.0%
Grade 6	30.5%	27.4%	27.9%	25.8%	24.8%
ALCOHOL	**41.8%**	**33.4%**	**32.6%**	**30.2%**	**29.6%**
Grade 4	31.0%	25.2%	25.1%	21.7%	21.5%
Grade 5	38.5%	28.6%	30.3%	28.6%	28.4%
Grade 6	56.5%	46.4%	42.5%	40.3%	39.2%
INHALANTS	**15.3%**	**16.4%**	**9.8%**	**9.8%**	**12.3%**
Grade 4	12.7%	14.6%	8.4%	8.7%	10.4%
Grade 5	9.6%	10.5%	8.0%	8.3%	11.1%
Grade 6	24.0%	24.0%	13.0%	12.4%	15.4%
MARIJUANA	**2.7%**	**1.7%**	**5.6%**	**4.0%**	**3.6%**
Grade 4	1.1%	0.8%	3.5%	1.7%	1.2%
Grade 5	1.8%	0.9%	4.6%	2.9%	2.6%
Grade 6	5.4%	3.4%	8.8%	7.3%	7.2%

School Year 1990	School Year 1992	School Year 1994	School Year 1996	School Year 1998
13.3%	**11.5%**	**12.0%**	**10.8%**	**10.3%**
8.2%	6.5%	7.1%	5.5%	6.0%
13.2%	11.9%	10.9%	9.9%	8.9%
18.7%	16.1%	18.1%	17.0%	16.3%
28.8%	**20.5%**	**22.6%**	**20.5%**	**20.2%**
21.1%	14.7%	17.3%	14.5%	14.4%
28.1%	18.0%	20.3%	19.0%	18.8%
37.7%	28.8%	30.2%	28.1%	27.6%
11.4%	**10.9%**	**5.7%**	**7.1%**	**9.2%**
9.5%	10.8%	4.2%	6.3%	7.6%
7.1%	7.1%	4.8%	6.2%	8.1%
17.8%	14.8%	8.0%	8.8%	11.8%
1.8%	**1.0%**	**1.9%**	**2.7%**	**2.6%**
0.7%	0.4%	0.7%	0.9%	0.9%
1.3%	0.6%	1.2%	1.8%	1.9%
3.6%	2.0%	3.7%	5.4%	5.2%

BEST COPY AVAILABLE

Chapter 1. Patterns of Substance Use

Introduction

In the spring of 1998, the Texas Commission on Alcohol and Drug Abuse, in conjunction with the Public Policy Research Institute (PPRI) at Texas A&M University, conducted the fifth statewide survey of substance use among students in elementary schools. The decision to survey students in grades four, five, and six was made in 1989 after it became clear from the first survey of students in secondary schools that many students had started using substances during their elementary years. The elementary school survey has been conducted every other year since 1990, in the same years and in the same school districts as the secondary survey.

The decision to survey students in grades four, five, and six was made in 1989 after it became clear from the first survey of students in secondary schools that many students had started using substances during their elementary years.

The 1998 survey results were based on responses from 91,168 students in grades four through six in 64 school districts in the state. A copy of the survey instrument can be found in Appendix A. Appendix B contains complete prevalence tables; Appendix C includes additional tables on inhalants, peer substance use, perceptions of danger, and sources of information; and Appendix D contains a description of the survey methodology and limitations of the study.

The elementary survey asked students about their use of alcohol, tobacco, inhalants, and/or marijuana. Chapter 1 discusses the prevalence and trends of use for each substance individually. Chapter 2 and Chapter 3 focus on demographic and social characteristics of users and risk factors for substance use. Chapter 4 presents conclusions and recommendations for policies and programs to prevent substance use. Where appropriate, comparisons are made with findings from the secondary school survey.

Terminology

Elementary students are those public school students in grades four through six; *secondary students* are those public school students in grades seven through twelve. *Middle school students* refer to students in grades six though eight; *high school students* are those in grades nine through twelve.

The survey asked about four classes of substances including tobacco, alcohol, inhalants, and marijuana. Texas law prohibits the purchase, possession, and consumption of alcohol by those under age twenty-one and prohibits the purchase or possession of tobacco and purchase of some inhalants by those under age eighteen. Marijuana is considered an illicit drug for all ages.

The study asked students whether they qualified for a free or reduced-price school lunch as an indirect measure of family household income level. Students who qualified for a free or reduced-price school lunch were considered *low-income*.[1]

Prevalence refers to the percentage of students reporting use of one or more substances at a given time. *School-year* and *past-year use* refers to the percentage of students who had used substances in the past school year. *Lifetime prevalence* refers to the percentage of students who had ever used substances at least once in their lives, regardless of when the substance was last used.

Recency of use refers to the last time a substance was used: within the past month, the current school year, or prior to the current school year. *Frequency of use* describes how often use has occurred.

Figure 1.1. Percentage of Texas Elementary Students Who Used Substances in the Past School Year, by Grade: 1998

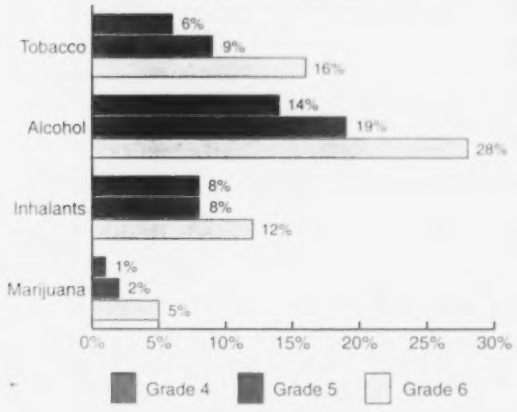


Figure 1.2. Percentage of Texas Elementary Students Who Used Selected Substances in the Past School Year: 1990–1998

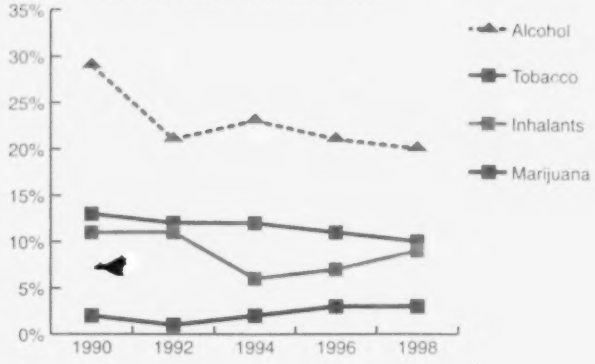
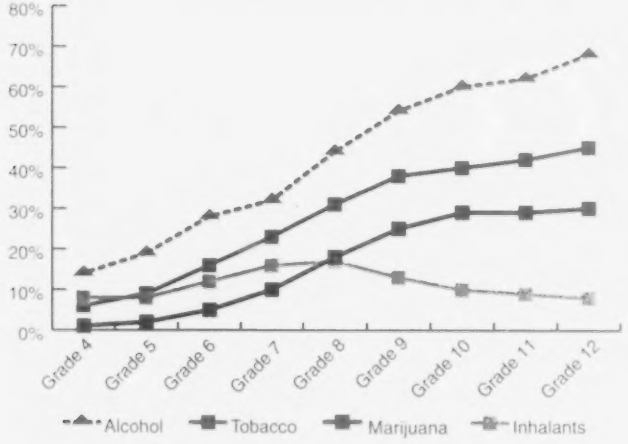


Figure 1.3. Percentage of Texas Elementary and Secondary Students Who Used Selected Substances in the Past School Year, by Grade: 1998



Overview of Substance Use

In 1998, one-quarter of all elementary students (20 percent of fourth graders, 25 percent of fifth graders, and 34 percent of sixth graders) in Texas had used tobacco, alcohol, inhalants, and/or marijuana during the past school year. Figure 1.1 shows the prevalence of past-year use of tobacco, alcohol, inhalants, and marijuana for students in grades four, five, and six. Figure 1.2 and Table B1 (Appendix B) show, for each survey year since 1990, the percentage of elementary students who had used each substance. These levels and trends of use are discussed in the sections of this chapter that deal with each individual substance.

Figure 1.3 shows prevalence of substance use within the larger context of students from fourth through twelfth grade. It is clear that use of tobacco, alcohol, and marijuana increases steadily from fourth through twelfth grade, with alcohol use increasing especially rapidly between seventh and eighth grade. Inhalants are the only substance whose use increases to a peak in middle school and then declines to elementary school levels

BEST COPY AVAILABLE

after ninth grade. This may be in part because some heavy inhalant users drop out of school after middle school and therefore do not participate in later school surveys.

Tobacco

In 1998, 16 percent of all elementary students reported having used some type of tobacco product in their lifetime.

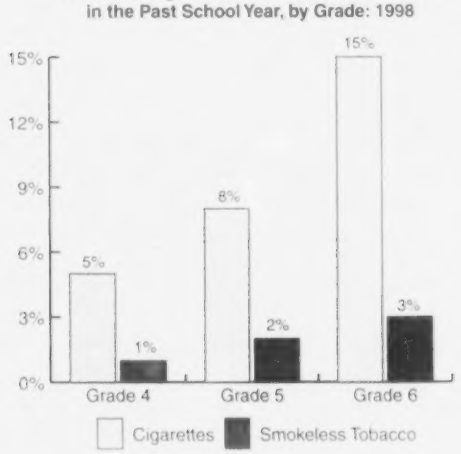
Despite being a licit drug, at least for those aged eighteen and over, tobacco is one of the most addictive substances, and its long-term use is a major risk factor for lung cancer, heart disease, and certain respiratory disorders such as emphysema. It is considered an entry-level or "gateway" drug because tobacco is often the first substance used in a progression to other substance use. The tobacco category in the prevalence tables shown in Appendix B includes the use of both cigarettes and smokeless tobacco (snuff or chewing tobacco).

Among Texas elementary students, tobacco was the second most widely used substance, following alcohol in popularity. In 1998, 16 percent of all elementary students reported having used some type of tobacco product in their lifetime, and about 10 percent had used it in the past year. As with most other substances, tobacco use increased with grade level (Figure 1.4). The average age reported for the first use of tobacco among sixth graders who had ever used it was 9.9 years, earlier than the age of first use of any other substance except beer (see Table 1.3, page 17).

Types of Tobacco Products Used

Cigarette smoking was much more common than smokeless tobacco use among youth. Almost 10 percent of students had smoked cigarettes during the past year, as compared to only 2 percent who had used chewing tobacco or snuff. Students perceived smokeless tobacco as somewhat more dangerous than cigarettes, with 59 percent saying that smokeless tobacco was very dangerous, as compared to 53 percent who thought that cigarettes were very dangerous. Cigarettes appeared to be more widely available than other forms of tobacco, with 26 percent of students saying that they had been offered a cigarette as compared to only 8 percent who had been offered smokeless tobacco.

Figure 1.4. Percentage of Texas Elementary Students Who Used Cigarettes and Smokeless Tobacco in the Past School Year, by Grade: 1998



Demographic Correlates of Tobacco Use

Male students were more likely than female students to have smoked cigarettes and to have used smokeless tobacco during the past school year. Among the three main racial/ethnic groups, Hispanic youths had the highest past-year prevalence of cigarette smoking; however, Anglo youths reported a slightly higher past-year use of smokeless tobacco than African American and Hispanic youths. Students from lower-income families were slightly more likely than those from higher-income families to have smoked cigarettes in the past year, and slightly less likely to have used smokeless tobacco.

Trends in Tobacco Use Since 1990

Rates of lifetime and past-year use of tobacco by elementary students have declined almost steadily since 1990. The largest declines over that period were seen among male students and Anglo students. Since the last survey in 1996, past-year tobacco use declined for fifth and sixth graders but rose slightly among fourth graders. It remains to be seen whether this was a temporary blip or the beginning of an upward trend of tobacco use among the younger students.

Alcohol

As is true among older students as well as adults in the general population, alcohol was the most widely used substance by elementary students, with 30 percent having tried it at least once during their lives and 20 percent having drunk alcohol during the past school year. The percentage of students who had ever tried alcohol and the percentage who had consumed it within the past year increased with grade, almost doubling between fourth and sixth grades (Table B2). Many students began drinking at an early age (see Table 1.3 on page 17). Over one-half of lifetime alcohol users said they had first started drinking alcohol when they were nine years old or younger. Beer was the first alcoholic beverage elementary students usually tried.

Over one-half of lifetime alcohol users said they had first started drinking alcohol when they were nine years old or younger.

The popularity of alcohol consumption may be due to its easy availability and the perception that alcohol is perhaps not as dangerous to use as some other substances. About 33 percent of elementary students reported that they had been offered alcohol at some time in their lives. Only 44 percent thought it was very dangerous to drink beer or wine and 37 percent thought it very dangerous to drink wine coolers (in comparison to 53 percent who thought it very dangerous to smoke cigarettes and 78 percent who thought it was very dangerous to use marijuana). A large percentage (44 percent) of students who had consumed alcohol said they had obtained it from home—presumably not always with their parents' approval, since most students said their parents did not approve of youth their age drinking beer.

Consumption of Specific Beverages

Students were asked about four categories of alcoholic beverages including beer, wine, wine coolers, and liquor (whiskey, vodka, tequila, etc.). Beer and wine coolers were consumed most often, with about 12 percent of students having consumed each of them in the past school year, as compared to 9 percent who had consumed wine and 5 percent who had consumed liquor. Students first tried liquor at age ten, about a year later on average than beer. Figure 1.5 shows the percentage of students in each grade who had consumed each kind of beverage during the past school year.

Heavy Alcohol Consumption

Elementary students were asked how many times during the past twelve months they had consumed two or more drinks in a row, which is a considerable amount of alcohol

Figure 1.5. Percentage of Texas Elementary Students Who Used Specific Alcoholic Beverages in the Past School Year, by Grade: 1998

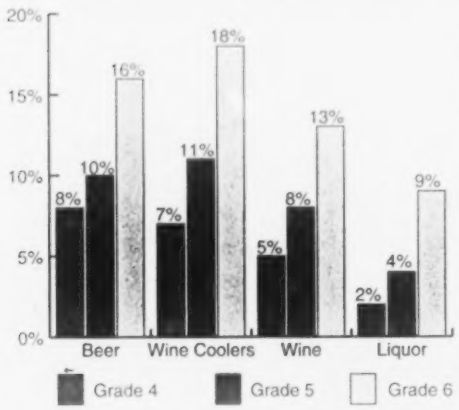
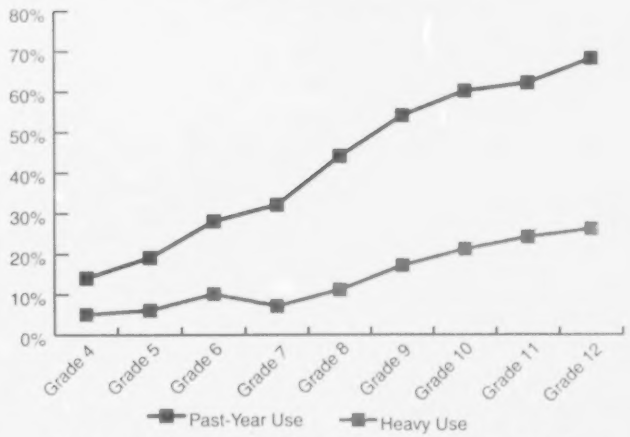


Figure 1.6. Percentage of Elementary and Secondary Students Who Drank Alcohol in the Past School Year and Who Drank Heavily, by Grade: 1998



Note: Heavy alcohol use was considered to be two or more beers in a row for elementary students (grades 4–6) and five or more beers in a row for secondary students (grades 7–12).

Table 1.1. Frequency of Heavy Alcohol Consumption Among Texas Elementary Students, by Grade: 1998

During the past year, how many times have you had two or more drinks in a row?

	1 Time	2 Times	3+ Times	Never
Beer				
All Students	8.6%	3.4%	3.4%	84.6%
Grade 4	7.6%	2.6%	2.2%	87.6%
Grade 5	8.1%	3.1%	2.8%	86.0%
Grade 6	10.2%	4.4%	5.4%	80.0%
Wine Coolers				
All Students	7.6%	3.9%	4.0%	84.5%
Grade 4	5.3%	2.1%	2.5%	90.1%
Grade 5	7.6%	3.8%	3.3%	85.3%
Grade 6	9.9%	5.7%	6.4%	78.0%
Wine				
All Students	6.8%	2.6%	2.3%	88.3%
Grade 4	4.8%	1.6%	1.5%	92.1%
Grade 5	6.3%	2.4%	1.9%	89.4%
Grade 6	9.2%	3.8%	3.5%	83.5%
Liquor				
All Students	3.6%	1.5%	2.1%	92.8%
Grade 4	2.1%	0.6%	0.9%	96.4%
Grade 5	3.0%	1.3%	1.5%	94.2%
Grade 6	5.7%	2.6%	3.8%	87.9%

BEST COPY AVAILABLE

Figure 1.7. Percentage of Texas Elementary Students Who Drank Alcohol in the Past School Year, by Race/Ethnicity: 1990–1998

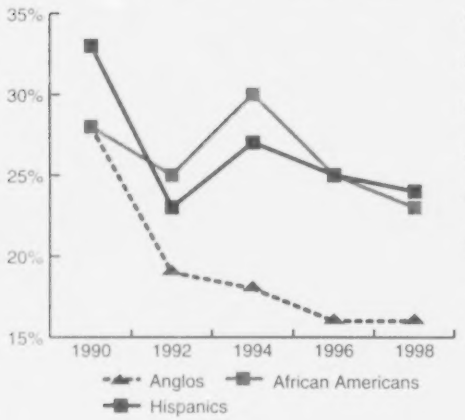
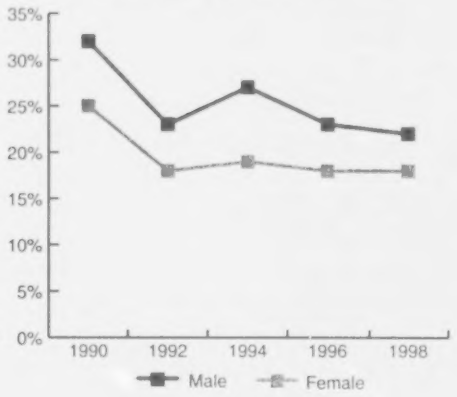


Figure 1.8. Percentage of Texas Elementary Students Who Drank Alcohol in the Past School Year, by Gender: 1990–1998



for a young person aged 12 years old or younger. This was defined as *heavy drinking* (in contrast to the definition used among secondary students, which was drinking five or more drinks in a row).[2] Of the four alcoholic beverages asked about, wine coolers and beer were the most likely to be consumed in large quantities (Table 1.1). About 16 percent of all elementary students (10 percent, 15 percent, and 22 percent of fourth, fifth, and sixth graders, respectively) had drunk two or more wine coolers in a row at least once during the 1998 school year, and 5 percent claimed to have done so three or more times. Figures were similar for beer. The prevalence and frequency of heavy drinking increased with grade level for all beverages.

Figure 1.6 shows the percentage of students who drank any alcohol and the percentage who drank heavily in each grade from fourth through twelfth in 1998. As the prevalence of drinkers increased, heavy drinkers accounted for a smaller proportion of them.

Demographic Correlates of Alcohol Use

Male elementary students were more likely than females to report lifetime and past-year use of alcohol, except for wine coolers, where use was the same for boys and girls. Anglos were less likely than African Americans or Hispanics to have drunk alcohol in their lives and in the past year. The racial/ethnic difference was most pronounced for beer and wine coolers, with smaller differences for wine and liquor. Lower-income students were more likely than higher income students to have consumed beer and wine coolers, but there was no income difference for the consumption of wine or liquor. These demographic differences held true when considering heavy drinking as well.

Trends in Alcohol Use Since 1990

As shown previously in Figure 1.2, past-year alcohol use among elementary students declined dramatically between the first survey in 1990 and the second one in 1992, but has remained fairly stable since then. The age at which students first began drinking has also remained fairly constant since 1992, at slightly over nine years old.

BEST COPY AVAILABLE

Changes in the prevalence of past-year alcohol use since 1990 occurred in parallel for all three grade levels. Figure 1.7 shows that, since 1990, Anglos have shown a steady decline in past-year alcohol use while use increased for African Americans and Hispanics in 1994 before resuming its decline. Between 1996 and 1998, while past-year alcohol use continued to decline slightly for African Americans and Hispanics, it rose slightly among Anglos. Figure 1.8 shows that rates of decline in past-year drinking since 1990 were similar for boys and girls, although boys showed a slight upturn in 1994, a finding which was not seen for girls. Students' family income was not assessed in 1990 and 1992, so trends in the relationship between income and alcohol use cannot be ascertained.

Heavy alcohol use can be compared across the years since 1990 only for fourth and fifth graders, while for sixth graders, it can only be compared since 1994 (see footnote 2). Table C5 (Appendix C) shows that, for fourth and fifth graders, the pattern of heavy drinking was similar to that for any past-year alcohol use, with a dramatic decline between 1990 and 1992 and relative stability since then. For sixth graders since 1994, heavy drinking declined for beer and wine, but increased for wine coolers and remained stable for liquor.

Inhalants

The term *inhalants* refers to hundreds of different household and commercial products which can be abused by sniffing or huffing (inhaling through the mouth). Abused inhalants include volatile solvents (such as gasoline, glue, paint thinner, and polishes), anesthetics (such as ether, chloroform, and nitrous oxide), nitrites (such as "Poppers," "Rush," and "Locker Room"), and aerosols (such as spray paint, hair spray, and deodorant). Inhalants are readily available; their easy access, low cost, and intoxicating effects make them an alluring choice for young people experimenting with substances. Inhalants were the third most prevalent substance after alcohol and tobacco among younger students.

About 12 percent of elementary students had used inhalants during their lifetime, and about 9 percent had used them in the past school year. Lifetime and past-year inhalant use increased with grade level (Figure 1.9). The average age at which

Figure 1.9. Percentage of Texas Elementary Students Who Ever Used Inhalants and Who Used Them in the Past School Year, by Grade: 1998

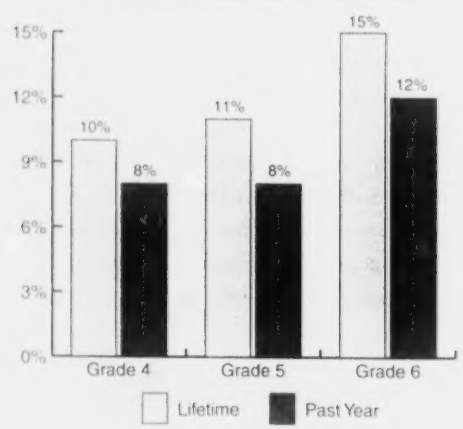


Figure 1.10. Percentage of Texas Elementary Students Who Ever Used Specific Inhalants, by Grade: 1998

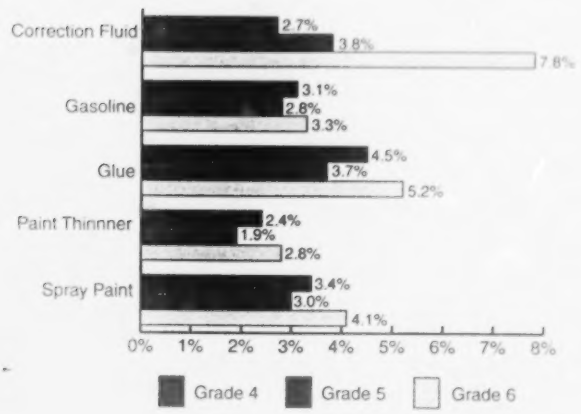
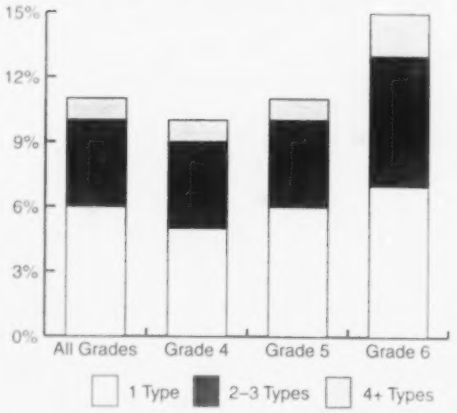


Figure 1.11. Percentage of Texas Elementary Students Who Ever Used Inhalants, by Grade and Number of Different Inhalant Types Used: 1998



students had first used inhalants was about half a year later than for beer, but about the same age as when they had first tried wine or wine coolers (10.1 for sixth graders in 1998).

Specific Inhalants

Students were asked whether they had used any of the following specific inhalant substances "with the intention of getting high:" gasoline, paint thinner, glue, whiteout or correction fluid, and spray paint.

Correction fluid, closely followed by glue and spray paint, were the most commonly used inhalants among elementary students (Appendix C, Table C1), while gasoline and paint thinner were used by somewhat fewer students. Many students also reported using "other" (unspecified) inhalants. While lifetime prevalence rates increased with grade level for correction fluid, there was a curvilinear relationship between grade and use of gasoline, glue, paint thinner, and spray paint with fifth graders reporting the lowest prevalence of those inhalants as compared to students in the other grades (Figure 1.10). Sixth graders favored correction fluid over other inhalants, and fourth graders favored glue, while fifth graders had used correction fluid and glue about equally.

Use of Multiple Inhalants

About half of all lifetime inhalant users admitted to having used at least two different kinds of inhalants. Of all the elementary students surveyed, 6 percent had ever used one type of inhalant, 4 percent had ever used two or three different inhalants, and 1 percent said they had ever used four or more types of inhalants (Figure 1.11).

Demographic Correlates of Inhalant Use

Male elementary students were more likely than female students to have used inhalants in their lifetime and in the past year. By grade six, however, past-year use was very similar for boys and girls. Hispanic elementary students reported a higher prevalence of lifetime and past-year inhalant use than Anglo or African American youths at all grade levels. Correction fluid was the most popular inhalant among Hispanic and Anglo youths, while African American elementary students were the most likely to have used glue. Students from lower income families were slightly more likely to report lifetime and past-year use of inhalants than students from higher income families.

BEST COPY AVAILABLE

Trends in Inhalant Use

Between 1990 and 1994, inhalant use dropped by half, only to rise again by 1998 to almost as high levels as were reported in 1990. Since 1996, past-year inhalant use has risen by over 2 percentage points, making it the only substance whose use has increased since the last survey. An increase in inhalant use has also been noted among secondary school students in Texas.[5]

Since 1994, the first time the question was asked exactly as it is at present, elementary students who had used inhalants have also been increasingly likely to have tried more than one type of inhaled substance.

Patterns of change in inhalant use since 1992 have been generally similar for boys and girls, for fourth, fifth, and sixth graders, and for all three racial/ethnic groups.

Marijuana

Marijuana was the only illicit substance included in the elementary version of the Texas School Survey. Because of the relative difficulty of obtaining marijuana as well as its high perceived danger, it is not surprising that marijuana prevalence was fairly low in the elementary grades. Fewer than 4 percent of elementary students in 1998 had ever tried marijuana and about 2.6 percent had used it within the past school year. As shown in Figure 1.12, lifetime and past-year prevalence were substantially higher in sixth grade than in the other two grades. Elementary youths began using marijuana later than other substances. In 1998, the average age of first use of marijuana among sixth graders who had ever used it was 10.5 years of age (see Table 1.3 on page 17), which was the oldest age reported for any of the substances examined.

Demographic Correlates of Marijuana Use

Male elementary students were more likely than females to report lifetime and past-year use of marijuana. Among the three major racial/ethnic groups, Hispanic youths had almost double the rates of lifetime and past-year marijuana use as African Americans and Anglos. Rates of lifetime and past-year use were higher for students from lower income families as compared to those from higher income families. The same gender, racial/ethnic, and income differences were seen within each grade level as well.

Figure 1.12. Percentage of Texas Elementary Students Who Ever Used Marijuana and Used Marijuana in the Past School Year, by Grade: 1998

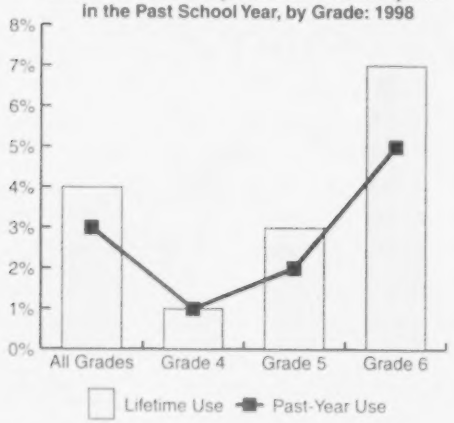
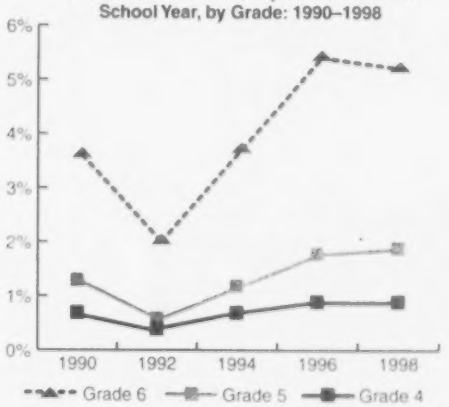


Figure 1.13. Percentage of Texas Elementary Students Who Used Marijuana in the Past School Year, by Grade: 1990–1998



BEST COPY AVAILABLE

Figure 1.14. Percentage of Texas Elementary Students Who Used Marijuana in the Past School Year, by Gender: 1990–1998

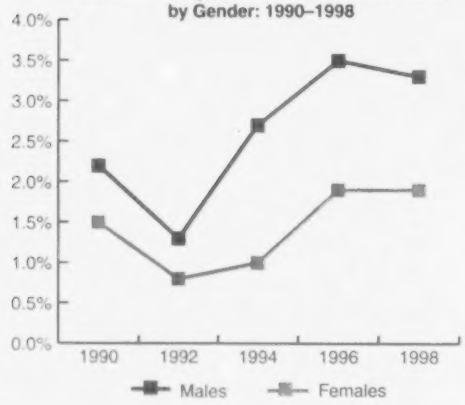
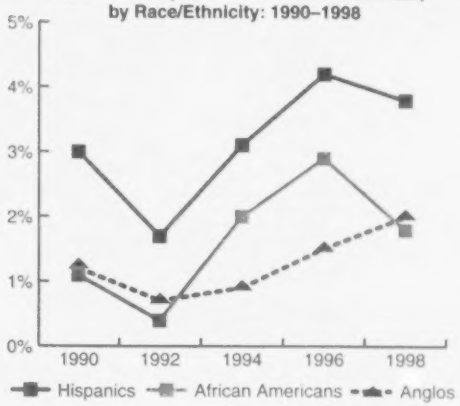


Figure 1.15. Percentage of Texas Elementary Students Who Used Marijuana in the Past School Year, by Race/Ethnicity: 1990–1998



Trends in Marijuana Use Since 1990

Past-year marijuana use dropped between 1990 and 1992, but then rose steadily until 1996; in 1998, past-year rates were almost identical to those of 1996 (Figure 1.12). Grade-level patterns showed that sixth graders had a large increase in past-year marijuana use between 1992 and 1996 but experienced a very slight decline in use in 1998 (Figure 1.13). The increase in past-year use since 1992 also occurred among fourth and fifth graders, and has remained relatively stable since 1996.

Boys have experienced a relatively greater increase in past-year marijuana use since 1990 than girls.

Boys have experienced a relatively greater increase in past-year marijuana use since 1990 than girls, as shown in Figure 1.14. Patterns of change in past-year prevalence were also quite different for Anglo students as compared to African American and Hispanic students. As shown in Figure 1.15, while African American and Hispanic students had experienced a much steeper increase than Anglos in their marijuana use after 1992, they also reported a significant decline between 1996 and 1998, in contrast to a continued rise in use for Anglos. For the first time since 1992, use of marijuana by Anglo students has surpassed that of African American students.

Patterns of Multiple Substance Use

Most elementary students who had used any substance within the past year had used only one of the four kinds of substances asked about in the survey. About two-thirds of students who had used a substance in the past year had used either tobacco, alcohol, or inhalants, but not more than one of those substances. There were very few cases of students using marijuana but no other drug.

The other one-third of substance users had used two, three, or all four of the substances asked about during the past year. The most common pattern was to have used both tobacco and alcohol, and the second most common pattern was use of alcohol and inhalants. Table 1.2 shows the patterns of single and multiple substance use reported by elementary students in 1998.

Age at First Use of Substances

The earlier a child begins using substances, the more likely he or she is to progress to more problematic patterns of use.[4] Therefore, delaying the age of first use is an integral prevention strategy.

Beer is the first substance that Texas elementary school students tried (Table 1.3). Among sixth graders who had drunk beer, the average age of first use was 9.4 years.

Table 1.2. Percentage of Elementary Students Who Used Single or Multiple Substances During Past Year

Used no substance	73.9%
Used only one substance	15.8%
Alcohol only	10.3%
Tobacco only	2.2%
Inhalants only	3.2%
Marijuana only	0.1%
Used two substances	6.2%
Alcohol and tobacco	3.5%
Alcohol and inhalants	1.9%
Alcohol and marijuana	0.2%
Tobacco and inhalants	0.5%
Tobacco and marijuana	0.1%
Used three substances	3.0%
Tobacco+alcohol+inhalants	2.0%
Tobacco+alcohol+marijuana	0.8%
Tobacco+inhalants+marijuana	0.1%
Alcohol+inhalants+marijuana	0.1%
Used all four substances	1.1%

Table 1.3. Average Age of First Use (in Years) of Substances Among Texas Elementary Students Who Ever Used Substances, by Grade: 1998

	Grade 4	Grade 5	Grade 6
Tobacco	8.3	9.1	9.9
Alcohol	8.2	9.0	9.5
Beer	8.1	8.8	9.4
Wine Coolers	8.6	9.4	10.1
Wine	8.6	9.4	10.1
Liquor	8.6	9.5	10.4
Inhalants	8.3	9.3	10.1
Marijuana	8.8	9.6	10.5

which was earlier than for any other substance. Initiation of tobacco use among sixth graders occurred about half a year later than alcohol use; the first use of inhalants occurred about 0.7 years later than alcohol use; and the onset of marijuana use was about 1.1 years later than alcohol use. Sixth graders had first tried marijuana at about 10.5 years of age.

As is generally the case among substance users, elementary students had started using licit substances earlier than they began using illicit drugs. This observation is consistent with the view that alcohol, tobacco, and inhalants are "gateway drugs" whose use generally precedes the use of other drugs. Although alcohol was the earliest substance tried, only beer was begun this early, while wine coolers, wine, and liquor were begun at about the same age as inhalants or marijuana.

Since 1990, there has been little change in the average age at first use of any substance except that the age at which sixth graders had first begun to drink beer has dropped by about one year from 10.4 to 9.4 years. This drop occurred between 1992 and 1994 with no further change since then.

Endnotes

1 Children in a family of four earning $20,865 a year or less were eligible to receive a free school lunch; children in a family of four earning more than $20,865 but less than $29,693 a year were eligible to receive a reduced-price school lunch. US Department of Agriculture, "The National School Lunch and Child Nutrition Program – Income Guide, 1997–98."

2 Since sixth graders were surveyed using the secondary survey instrument in 1990 and 1992 and the elementary instrument subsequently, heavy drinking for them can not be compared between the earlier and later surveys. The measurement of heavy drinking was, however, comparable for fourth and fifth graders since 1990.

3 Jane Maxwell and Liang Liu. *1998 Texas School Survey of Substance Use Among Students: Grades 7-12*. Austin: Texas Commission on Alcohol and Drug Abuse, February 1999.

4 Marnik Dekimpe, Linda Van de Gucht, Dominique Hanssens, and Keiko Powers, "Long-Run Abstinence After Narcotics Abuse: What Are the Odds?" *Management Science*, 44 (1998): 1476-1492.

BEST COPY AVAILABLE

Chapter 2. Demographic Correlates of Substance Use

Introduction

Substance use patterns differed among students according to their individual, family, peer, and academic characteristics. This chapter examines substance use by gender, race/ethnicity, family structure, parents' education and income, length of residence in the community, grade level, and academic performance (see Appendix B, Tables B2–B15).

Gender

Male elementary students were more likely than female students to have used all substances.

Male elementary students were more likely than female students to have used all substances. Table 2.1 presents past-year rates of substance use for boys and girls, and indicates the ratio of male use to female use. For example, male students were about 1.3 times more likely than females to have used tobacco in the past school year (almost 12 percent versus 9 percent). Ratios of past-year use narrowed for all substances as students became older. For instance, male fourth graders were 1.6 times more likely than female fourth graders to have used tobacco in the past school year, but by the sixth grade, males were only 1.1 times more likely than females to report tobacco use. This finding suggests that as students get older, girls increase their substance use at a faster rate than boys.

Table 2.1. Percentage of Texas Elementary Students Who Had Used Substances in the Past School Year, by Gender and Grade: 1998

	Males	Females	Ratio *
Tobacco			
All Students	11.6%	9.0%	1.29
Grade 4	7.3%	4.7%	1.55
Grade 5	10.7%	7.1%	1.51
Grade 6	17.2%	15.5%	1.11
Alcohol			
All Students	22.4%	18.1%	1.24
Grade 4	17.0%	11.9%	1.43
Grade 5	21.7%	15.9%	1.36
Grade 6	28.7%	26.6%	1.08
Inhalants			
All Students	10.1%	8.2%	1.23
Grade 4	9.0%	6.3%	1.43
Grade 5	9.4%	6.8%	1.38
Grade 6	12.0%	11.6%	1.03
Marijuana			
All Students	3.3%	1.9%	1.74
Grade 4	1.2%	0.6%	2.00
Grade 5	2.6%	1.3%	2.00
Grade 6	6.3%	4.0%	1.58

* Ratio = (% Males) / (% Females)

BEST COPY AVAILABLE

A comparison of 1998 prevalence rates to those of 1990 showed that the relative excess of male over female past-year use increased to a peak in 1994, after which it fell in 1996 and continued to fall in 1998. This means that girls are increasingly becoming as likely as boys to use substances. Between 1996 and 1998, as rates of past-year use of all substances except inhalants decreased for boys, they remained stable or increased for girls.

The pattern of male use being higher than female use persisted from the elementary grades through high school, although substance use rates for both males and females became more similar in the later grades (except, notably, for inhalants, where the ratio of male to female use steadily increased from ninth to twelfth grade).

Race/ Ethnicity

Figure 2.1 shows that Hispanic elementary students reported the highest rates of past-year use of all substances; only their use of alcohol was equaled by African American students. These racial/ethnic differences in substance use were not consistent within each grade level. The predominance of Hispanic substance use over that of Anglos and African Americans was most salient in the fifth and sixth grades for most substances, while there was less racial/ethnic difference in substance use among fourth graders. A notable turnaround in racial/ethnic differences by grade was observed in past-year alcohol use. In the fourth grade, African American students reported higher levels of

Figure 2.1. Percentage of Texas Elementary Students Who Used Substances in the Past School Year, by Race/Ethnicity: 1998

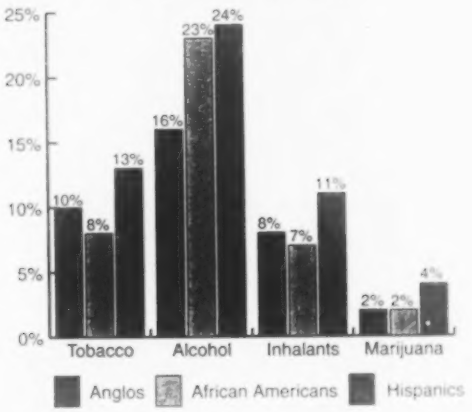


Table 2.2. Percentage of Texas Elementary Students Who Used Substances in the Past Year, by Race/Ethnicity: 1996 and 1998

	Anglo Students			African American Students			Hispanic Students		
	1996	1998	Change	1996	1998	Change	1996	1998	Change
Tobacco	10.1%	9.9%	-2.0%	9.4%	8.0%	-14.9%	12.6%	12.5%	-0.8%
Alcohol	15.7%	16.3%	3.8%	24.5%	23.0%	-6.1%	24.5%	23.8%	-2.9%
Inhalants	5.9%	7.8%	32.2%	5.7%	7.2%	26.3%	9.0%	11.3%	25.6%
Marijuana	1.5%	2.0%	33.3%	2.3%	1.8%	-21.7%	4.2%	3.8%	-9.5%

BEST COPY AVAILABLE

Figure 2.2. Percentage of Texas Elementary and Secondary Students Who Used Alcohol in the Past School Year, by Grade: 1998

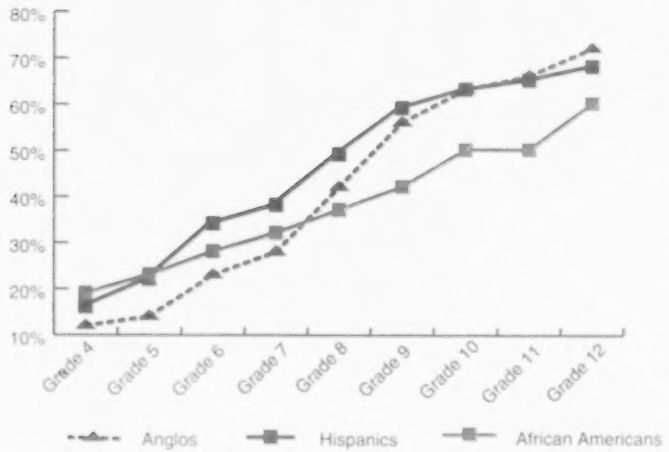
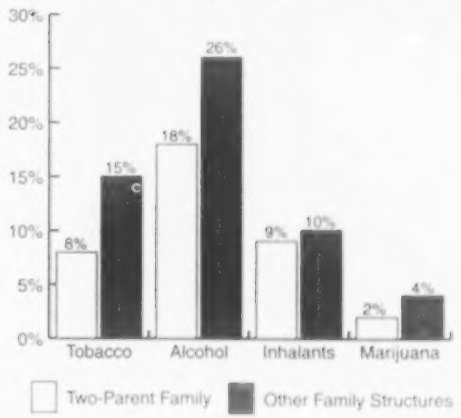


Figure 2.3. Percentage of Texas Elementary Students Who Used Substances in the Past School Year, by Family Structure: 1998



past-year alcohol use than Hispanics; while in the sixth grade, Hispanics had higher levels of use than African Americans. Anglos continued to have the lowest alcohol consumption in all three grades.

Inhalant use increased for all racial/ethnic groups, but most rapidly among Anglo students.

Between 1996 and 1998, past-year prevalence of substance use changed in different ways for the three racial/ethnic groups (Table 2.2). Inhalant use increased for all racial/ethnic groups, but most rapidly among Anglo students. For African Americans and Hispanics, tobacco, alcohol, and marijuana use decreased with especially large decreases in tobacco and marijuana use among African Americans. On the other hand, among Anglo students, past-year marijuana prevalence increased dramatically, and past-year use of alcohol also increased slightly. Tobacco use did decrease slightly for Anglo students, more than for Hispanics but less than for African Americans.

In elementary school, the racial/ethnic patterns of substance use are also somewhat different from those found among secondary students. While Hispanic students tended to use substances more than the other two racial/ethnic groups in elementary school, in high school their use was approximately matched by Anglo students. The pattern for past-year alcohol use is particularly interesting, as the relative prevalence of use for the different racial/ethnic groups changes over the course of the school career (Figure 2.2). Anglo students begin as the lowest consumers in elementary school of alcohol and end as the highest by late high school.

Family Structure

Students were asked whether they lived with both of their parents.[1] Elementary students who did not live with both parents were about one-and-a-half to two times as likely as those living with both parents to have used tobacco, alcohol, or marijuana (Figure 2.3). There was little difference, however, in inhalant use by family structure. The magnitude of difference in substance use between children from two-parent homes and those in other family types has remained fairly constant since 1990.

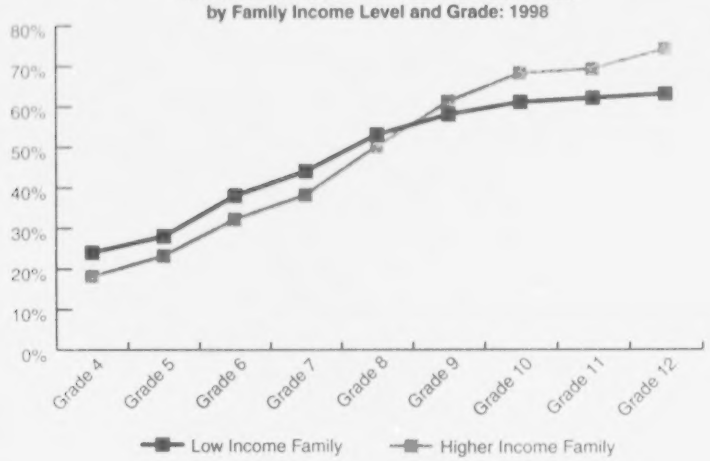
Table 2.3. Percentage of Texas Elementary Students Who Had Used a Substance* in the Past School Year, by Socioeconomic Variables and Grade: 1998

	Parental Education		Family Income Level**	
	College Educated	Not College Educated	Free/ Reduced-Price Lunch	No Free/ Reduced-Price Lunch
All Students	23.5%	34.1%	29.9%	25.0%
Grade 4	19.3%	24.7%	23.9%	18.2%
Grade 5	22.0%	30.9%	28.1%	23.3%
Grade 6	29.5%	42.7%	38.4%	31.8%

* Tobacco, alcohol, inhalants, and/or marijuana.

** Children in a family of four earning $20,865 a year or less were eligible to receive a free school lunch; children in a family of four earning more than $20,865 but less than $29,693 a year were eligible to receive a reduced-price school lunch. (Source: US Department of Agriculture, "The National School Lunch and Child Nutrition Program - Income Guide, 1997-98").

Figure 2.4. Percentage of Texas Elementary and Secondary Students Who Used a Substance in the Past School Year, by Family Income Level and Grade: 1998



Socio-economic Status

In the elementary survey, two questions are asked that may be considered to be indirect indicators of socioeconomic status: parental education (graduation from college) and students' eligibility for a free or reduced-price school lunch. Youths who had at least one college-educated parent were less likely to use substances than those who did not (Table 2.3). This was true for students in all three grade levels.

The question regarding eligibility for a free or reduced-price school lunch is a proxy measure of family income level that can be used for young students who would not be able to accurately report their household income. About 42 percent of all respondents in the 1998 elementary survey said they qualified for a free or reduced-price school lunch, 36 percent did not qualify, and 22 percent said they did not know.[2] Students who qualified for lunch subsidies were considered to be low income.

BEST COPY AVAILABLE

Among elementary students, there was a clear inverse relationship between substance use and family income level. Table 2.3 shows that elementary students who lived in low-income families were more likely to have used a substance in the past year than those from higher-income families.

Elementary students who lived in low-income families were more likely to have used a substance in the past year than those from higher-income families.

A notable difference between the results of the elementary and secondary school surveys was in the relationship between family income and substance use. Lower family income was related to higher substance use among both elementary students and middle school students. However, the trend reversed in high school, where lower family income was related to lower substance use (Figure 2.4). It might be expected that the environmental pressures associated with poverty would be reflected in higher substance use. The fact that the association between low income and higher substance use seems, however, to reverse in the higher grades may be partially due to higher dropout rates among substance users as well as among those from lower-income families generally. Students from lower-income families who remain in school seem equally or less likely than higher-income students in school to use substances.

Length of Time in School District

Elementary students were asked whether they had lived in their town for more than three years. This question was intended as a measure of the relative stability of students' lives, as well as of the overall geographic mobility of families in the school district. On the whole, there was little difference in substance use between students who had lived in their community for more than three years and students who had lived there three or fewer years.

Beyond individual mobility, there was also no apparent effect of the amount of mobility within a district overall on students' substance use; that is, students who attended school in districts that had a higher proportion of recent arrivals were no more or less likely than those from schools with more stable populations to have used substances.

Grade Level

Not unexpectedly, substance use among elementary students increased across the board with grade level (see Figure 1.1 on page 8). The increase in prevalence was sharper from fifth to sixth grade than between fourth and fifth, which suggests that many students begin experimenting with substances for the first time in the sixth grade. One probable reason for this increase is that in many school districts, sixth graders are integrated into middle school campuses where they are exposed to substance use by older students. Moreover, sixth grade students become increasingly independent as they enter early adolescence, and consequently may be more inclined to experiment with substances than younger students.

School Grades

Elementary students whose average grades were C's or lower were two to three times more likely to use substances than those who averaged A's or B's (Table 2.4). This study did not collect information to determine whether poor grades were a cause or consequence of substance use.

Academic status differences in substance use became more important as grade level increased. As shown in Figure 2.5, the difference in marijuana use between lower academic students and better students was only one percentage point in fourth grade as

Table 2.4. Percentage of Texas Elementary Students Who Had Used Substances, by Usual Grades Received in School: 1998

Ever Used

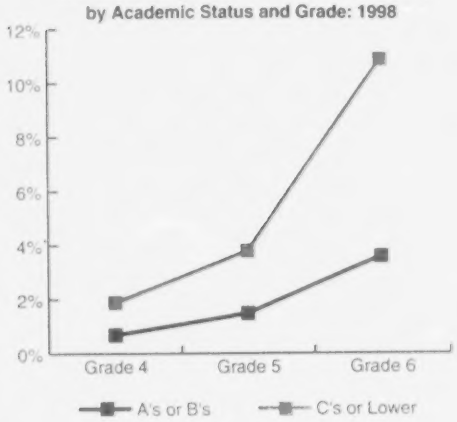
	A's or B's	C's or Lower	Ratio
Tobacco	14.5%	24.2%	1.7
Alcohol	27.4%	39.6%	1.4
Inhalants	11.1%	17.5%	1.6
Marijuana	2.8%	7.6%	2.7

Used This School Year

	A's or B's	C's or Lower	Ratio *
Tobacco	8.9%	16.5%	1.9
Alcohol	18.3%	28.7%	1.6
Inhalants	8.2%	13.3%	1.6
Marijuana	1.9%	5.8%	3.1

* Ratio = (% C, D, or F students) / (% A or B students)

Figure 2.5. Percentage of Texas Elementary Students Who Used Marijuana in the Past School Year, by Academic Status and Grade: 1998



compared to 7 percentage points by sixth grade. However, the relative difference narrowed again in high school. The only exception was for inhalants, where the difference remained fairly stable from elementary school through twelfth grade.

The differences in substance use between students who made A's or B's and those making lower grades have been observed in all years since 1990. For tobacco, alcohol and inhalants, they have been at about the same magnitude (one-and-a-half to two times) in each survey year. For marijuana use, however, the magnitude of difference between A or B students and C or lower students has decreased over time, from over 4 percent in 1990 and 1992 to 3 percent by 1998. This suggests that marijuana use among better students is increasing at a more rapid pace than use among students who make lower grades. While earning good grades is still somewhat of a protective factor against substance use, it appears to be becoming less so.

Endnotes

1 No distinction was made for whether these parents were biological or stepparents, so it is possible that some students who lived with a stepparent may have answered "yes" to the question while others may have answered "no."

2 Students who said they did not know whether they were eligible for subsidized lunches had substance use patterns similar to the higher-income students.

Chapter 3. Protective and Risk Factors Related to Substance Use

Introduction

This chapter examines other risk factors which may increase the likelihood of substance use among elementary students including having problems in school, having close friends who use substances, the widespread availability of substances, a low perceived danger of substance use, and tolerant parental attitudes toward substance use.

School Problems

In the 1998 elementary survey, about 4 percent of all respondents said that they had skipped school at least once in the past school year without a parent's consent, and 32 percent said they had been sent to the principal because of their conduct problems during that year. Students who had skipped school and/or had been sent to the principal were much more likely to have used substances than other students (Figure 3.1).

Peer Use

Approximately 35 percent of all elementary students in 1998 said that some or most of their close friends drank alcohol.

Research studies have found that peer use is one of the most important factors associated with a student's own substance use.[1] In the elementary survey, students were asked for each substance, "About how many of your close friends your age use [the substance]?" The response categories were "none," "some," or "most." Approximately 35 percent of all elementary students in 1998 said that some or most of their close friends drank alcohol, which was a higher percentage than for any of the other substances. Thirty percent of the students reported that at least some of their close friends used tobacco, 14 percent said that at least some of their close friends used inhalants, and 12 percent said that at least some of their close friends used marijuana (Appendix C, Table C2).

Patterns of peer substance use generally paralleled those of students' own levels of reported substance use. For instance, rates of friends who used substances increased by

Figure 3.1. Percentage of Texas Elementary Students Who Used Substances in the Past School Year, by School Misconduct: 1998

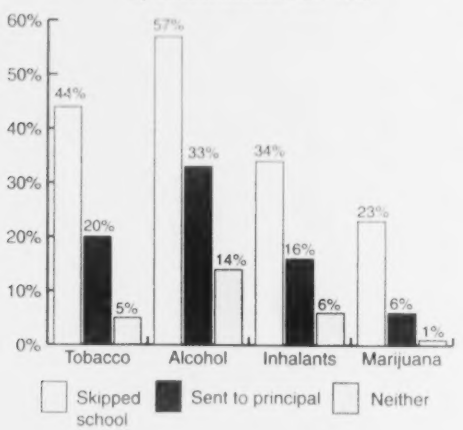


Figure 3.2. Texas Elementary Students' Reports of Peer Substance Use Compared to Their Own Substance Use in the Past School Year: 1998

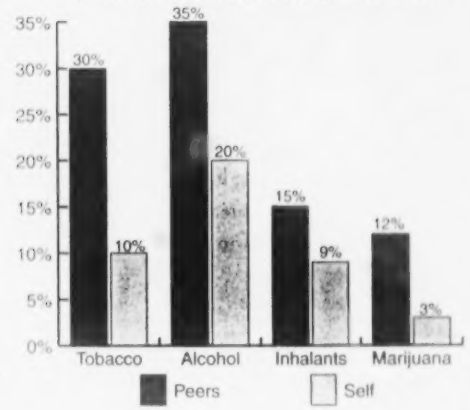


Table 3.1. Percentage of Texas Elementary Students Who Had Been Offered Substances, by Grade: 1998

	All	Grade 4	Grade 5	Grade 6
Tobacco	28%	20%	27%	37%
Cigarettes	26%	19%	24%	35%
Smokeless Tobacco	8%	6%	8%	12%
Alcohol	33%	26%	32%	42%
Beer	26%	20%	25%	34%
Wine Coolers	18%	11%	16%	26%
Wine	14%	9%	13%	21%
Liquor	10%	5%	9%	16%
Inhalants	10%	5%	9%	16%
Marijuana	10%	6%	9%	16%

grade level as did rates of students' own reported use. Hispanics, who reported the highest personal use of substances, also reported the highest percentage of peer use. Preferences for specific alcoholic beverages and inhalants were also similar for friends' use and students' personal use. But interestingly, although males had a higher rate of personal use of substances than females, boys and girls were equally likely to report that their close friends used substances.

The extent of peer use reported gives an indication of the student's opportunity to experiment as well as the probable level of peer pressure to use substances. It can also be an indirect reflection of students' own use. While some students may deny their own substance use behavior on a survey, they may be more straightforward about their friends' use. This fact may partly explain why the reported peer use of substances was, in general, much higher than reported personal use among students (Figure 3.2). It is possible as well that students overestimate the number of their peers who use substances. The *Texas Survey of Substance Use Among University Students*[2] found that college students consistently overestimated the amount of substance use on their campuses. Since many students try to match their behavior to what they perceive to be the norm, it is essential to dispel such erroneous overestimates of drug and alcohol use.

Perceived Availability

About 33 percent of all elementary students in 1998 reported that they had been offered alcohol.

The opportunity to experiment is one of the more important risk factors for use, particularly for substances that are not readily available. In the elementary survey, students were asked for each substance, "Has any one ever tried to give you [the substance]?" About 33 percent of all elementary students in 1998 reported that they had been offered alcohol (most commonly beer), and 28 percent had been offered tobacco, while 10 percent had been offered inhalants and 10 percent had been offered marijuana (Table 3.1). The reported availability of all substances increased with grade level.

While only 30 percent of students overall had ever drunk alcohol, this number rose to 90 percent of students who had ever been offered alcohol to drink. Slightly over half (58 percent) of students who had ever been offered tobacco had tried it, and about one-third (36 percent) of those who had been offered marijuana had tried it.

BEST COPY AVAILABLE

While for alcohol, tobacco, and marijuana, more students had been offered the substance than had actually used it, it is interesting that fewer elementary students recall having been offered inhalants than admit to using them. This may be because inhalant products are so ubiquitous that students who have used them may have simply acquired them for themselves or used products already available in the home. Inhalants may be substances which are less often introduced by others than tobacco, alcohol, or marijuana, since many students had tried inhalants even without having been offered them.

Since 1994, the availability of inhalants and marijuana has increased.

Since 1994, the first survey year in which all fourth through sixth graders were asked the question comparably, the availability of tobacco and alcohol reported by elementary students has declined slightly, while the availability of inhalants and marijuana has increased. Changes since then in the past-year prevalence of use of each substance have generally paralleled the changes in availability, with past-year prevalence of tobacco and alcohol having declined and past-year prevalence of inhalants and marijuana having increased since 1994.

Elementary students were also asked where they obtained the alcohol they drank (Figure 3.3). Among students who had drunk alcohol, almost half (44 percent of students who had ever drunk alcohol) had gotten it from home, while fewer than one-third (27 percent) had gotten it from friends. There was no difference by grade in the percentage who had obtained alcohol from home, but the percentage who had obtained it from friends increased with grade level. A significant proportion of elementary students who drank said that they usually obtained alcohol from sources other than home or their friends (38 percent of students who drank). Although many young children apparently obtain alcohol from their homes, this behavior does not seem to be sanctioned by their parents: only about 11 percent of students who obtained alcohol from home said that their parents either did not care about their drinking or actually approved of it.

Perceived Danger

In the elementary survey, students were asked for each substance, "How dangerous do you think it is for kids your age to use [the substance]?" The response categories were "very dangerous," "dangerous," "not dangerous at all," and "don't know." In 1998, about

Figure 3.3. Source of Alcohol for Texas Elementary Students Who Had Ever Drunk Alcohol, by Grade: 1998

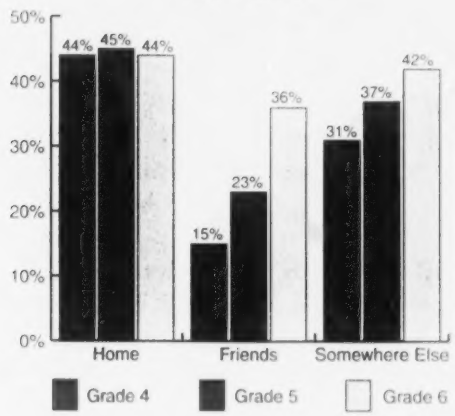


Figure 3.4. Percentage of Texas Elementary Students Who Thought It Was Very Dangerous to Use Substances, by Grade: 1998

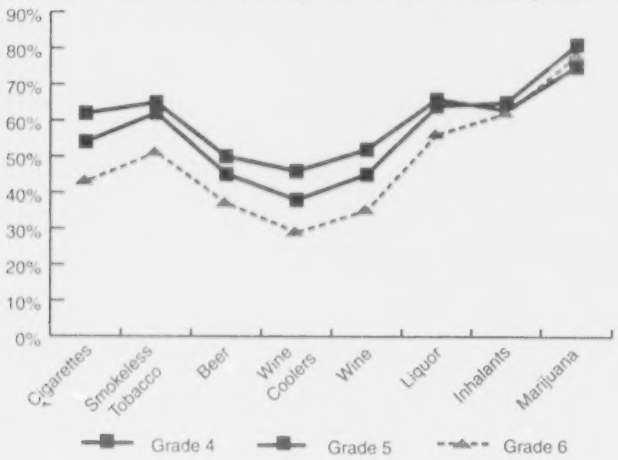


Table 3.2. Percentage of Texas Elementary Students Who Had Used Substances in the Past School Year, by Perceived Danger: 1998

	Very Dangerous	Dangerous	Not Dangerous At All
Cigarettes	4%	14%	47%
Smokeless Tobacco	1%	3%	15%
Beer	4%	12%	42%
Wine Coolers	3%	11%	44%
Wine	3%	10%	33%
Liquor	2%	9%	34%
Inhalants	5%	14%	47%
Marijuana	1%	5%	41%

67 percent of all elementary students thought that tobacco was very dangerous to use, 67 percent believed that alcohol was very dangerous to use, 63 percent said that inhalants were very dangerous, and 78 percent thought it was very dangerous to use marijuana (Appendix C, Table C3).

A higher percentage of students thought that wine and wine coolers were "not dangerous at all" (8 and 11 percent, respectively) than for any other substance.

Figure 3.4 shows, by grade level, the percentage of students who believed each of the substances asked about was very dangerous. Among the specific alcoholic beverages asked about, wine coolers were seen as the least dangerous while liquor was thought to be substantially more dangerous than wine or beer. Using smokeless tobacco was considered by more students to be very dangerous than smoking cigarettes. For tobacco and all alcoholic beverages, perceived danger decreased with grade level. For inhalants and marijuana, there was only a small difference by grade in perceived danger.

There was some variation in the amount of knowledge students seemed to have about the danger of the different substances asked about in the survey. Only about 5 percent of students said they did not know whether marijuana was dangerous or not, while 8 or 9 percent did not know whether inhalants, tobacco, beer, or liquor were dangerous or not. About 12 to 13 percent were unsure about whether wine and wine coolers were dangerous. These forms of alcohol may have a more benign appearance to young students. A higher percentage of students thought that wine and wine coolers were "not dangerous at all" (8 and 11 percent, respectively) than for any other substance.

Actual Use of Substances

Youths who believed that substances were very dangerous to use were, not surprisingly, less likely to have actually used those substances. Yet Table 3.2 also shows that a certain percentage of students who believed substances to be dangerous nevertheless said they had used them in the past school year.

Changes in Perceived Danger

There has been a small decline since 1992 in the perception that substances are dangerous (Figure 3.5). This has been especially true for marijuana, where only 78 percent of sixth graders thought that it was very dangerous in 1998 as compared to 92 percent in 1992, and there was a similar, though smaller, decline for students in the

BEST COPY AVAILABLE

other grades. The diminished fear of using marijuana among youths may have been a contributing factor in their sharp increase in marijuana use between 1992 and 1996. Fortunately, however, even though the perception that marijuana is dangerous has continued to decrease between 1996 and 1998, the prevalence of marijuana use has remained stable during that time (Figure 3.6).

The perceived danger of alcohol and inhalants has also decreased over time at all grade levels, but particularly among sixth graders. The one exception to this trend was that the percentage of fourth and fifth graders who believed that tobacco was dangerous has risen slightly since 1992 (but it still declined dramatically among sixth graders). The general lessening of the perceived danger of drugs has also been seen among secondary students.

The perceived danger of alcohol and inhalants has also decreased over time, but particularly among sixth graders.

Elementary students were more likely than secondary students to believe that alcohol, tobacco, and marijuana were very dangerous to use. For example, 78 percent of students in grades four through six thought it was very dangerous to use marijuana in comparison to 58 percent of students in grades seven through twelve (67 percent versus 44 percent for alcohol; 67 percent versus 40 percent for tobacco). On the other hand, fewer elementary students than secondary students believed that inhalants were very dangerous to use (63 percent versus 76 percent). Part of the reason for this may be the fact that many younger students taking the survey possibly did not fully comprehend what inhalants were. Another reason is that students may come to realize as they get older just how dangerous inhalants are. In fact, in high school, the percentage of students who believed inhalants were very dangerous rose steadily with grade level, from 73 percent of seventh graders to 81 percent of twelfth graders.

Parental Attitudes

Parental attitudes toward substance use may have considerable influence on their children's decisions to use substances or not. Elementary students are potentially even more strongly influenced by the attitudes of their parents than are secondary students. Yet, compared to secondary students, almost twice as many elementary students said they had no idea how their parents felt about children their age using marijuana or alcohol. Among students in grades four through six, about 16 percent were not sure how

Figure 3.5. Percentage of Texas Elementary Students Who Believed Selected Substances Were Very Dangerous: 1992–1998

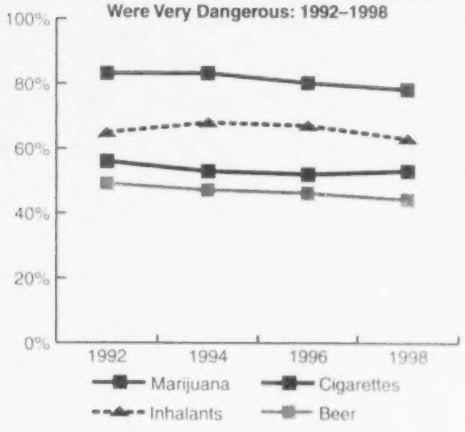
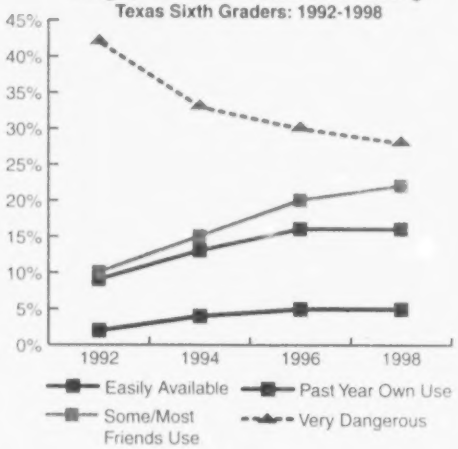


Figure 3.6. Marijuana Availability, Perceived Danger, Peer Use, and Actual Use Among Texas Sixth Graders: 1992-1998



BEST COPY AVAILABLE

their parents felt about children their age drinking beer, and 13 percent did not know how their parents felt about marijuana use (Table 3.3). Figure 3.7 shows that the percentage of students who did not know their parents' attitudes toward substance use declines steadily as students get older. Presumably, as their children grow up, parents perceive them to be increasingly exposed to substance and make an increasing effort to make their views known. But, although parents may not think that their younger children are vulnerable to substance use, the results of this survey suggest that exposure and use begin as early as elementary school. Parents must, therefore, begin to talk with their children about alcohol and drug use early on.

In 1998, about 96 percent of those elementary students who did know their parents' attitudes said that their parents disapproved of their drinking beer.

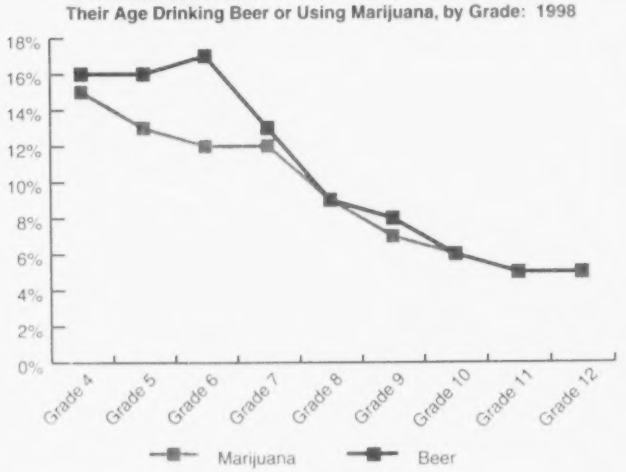
In 1998, about 96 percent of those elementary students who did know their parents' attitudes said that their parents disapproved of their drinking beer, and 97 percent said that their parents disapproved of youth using marijuana. There was little variation in these percentages from fourth to sixth grades. In high school, parental disapproval of drinking declined somewhat to 86 percent (for students in grades 7–12 combined), while disapproval of marijuana remained high at 93 percent (based on students who said they knew what their parents' attitudes were).

The percentage of all elementary students who said their parents did not approve of children their age drinking beer increased from 77 percent in 1990 to 80 percent in 1994, and has remained level since then. The disapproval rate for marijuana use has remained level at 85 to 86 percent over the years since the survey was first instituted.[5] When broken down by grade level, there has been some volatility in attitudes, with parental disapproval of marijuana increasing over time for sixth graders but apparently decreasing for fourth and fifth graders (Figure 3.8). The decrease in perceived parental disapproval may partially account for the rise in past-year marijuana use among fourth and fifth graders over the past four surveys. However, past-year marijuana use also rose for sixth graders, despite their increased perception of parental disapproval. Part of the reason for this may be that marijuana use among the older students was less affected by parental attitudes and more so by other factors.

Table 3.3. Responses of Elementary Students in 1998 to the Question, "How Do Your Parents Feel About Kids Your Age..."

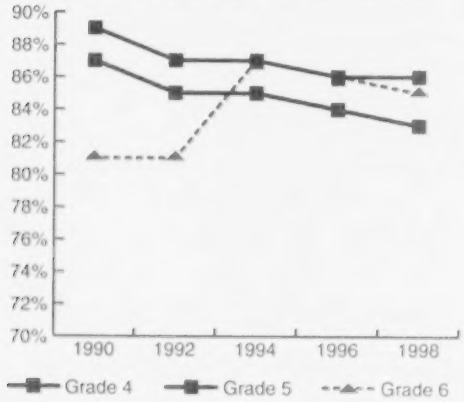
Drinking Beer?	Don't Like it	Don't Care	Think It's OK	Don't Know
All Students	80.1%	2.5%	0.9%	16.4%
Grade 4	80.5%	2.2%	1.0%	16.3%
Grade 5	80.9%	2.1%	0.7%	16.3%
Grade 6	79.0%	3.3%	1.1%	16.6%
Using Marijuana?	**Don't Like it**	**Don't Care**	**Think It's OK**	**Don't Know**
All Students	84.6%	1.6%	0.5%	13.2%
Grade 4	82.9%	1.3%	0.5%	15.3%
Grade 5	85.7%	1.4%	0.4%	12.5%
Grade 6	85.4%	2.2%	0.6%	11.8%

Figure 3.7. Percentage of Texas Elementary and Secondary Students Who Did Not Know How Their Parents Felt About Youth Their Age Drinking Beer or Using Marijuana, by Grade: 1998



BEST COPY AVAILABLE

Figure 3.8. Percentage of Texas Elementary Students Who Said Their Parents Did Not Like Youth Their Age to Use Marijuana, by Grade: 1990–1998



Sources of Information About Alcohol and Drugs

Some 92 percent of elementary students said they had gotten some kind of information on drugs or alcohol from a school source during the past school year.

The early attitudes and opinions of elementary students toward substance use can be affected by many different sources. Schools are in a position to be particularly influential in the decision processes of younger students. Some 92 percent of elementary students said they had gotten some kind of information on drugs or alcohol from a school source during the past school year (Appendix C, Table C4). Unlike high school students, where the percentage who had received information at school about substance use has declined dramatically since 1990 (from 87 percent to 65 percent), there has been little difference over time in the percentage of elementary students who have received such information.

The most frequently mentioned source of information on drugs and alcohol reported by elementary students in 1998 was their own teachers (72 percent), followed by a visitor to class (67 percent). Slightly fewer students said they had received information at an assembly program, from a guidance counselor, or from some other school source. Grade-level data showed that fifth graders were the most likely to have received information about drugs and alcohol at school during their school year. Since teachers are the primary source of information for students, it is essential that they be given the resources and encouragement necessary to impart alcohol, tobacco, and drug education to their students as part of their regular curriculum.

Endnotes

1. C. Jackson. "Initiation and Experimental Stages of Tobacco and Alcohol During Late Childhood: Relation to Peer, Parent and Personal Risk Factors." *Addictive Behaviors* 22 (1997): 1-14. Note that being friends with substance-using peers can be, of course, a result as well as a cause of a student's own substance use.
2. Lisa Kerber and Lynn Wallisch. *1997 Texas Survey of Substance Use Among University Students*. Austin: Texas Commission on Alcohol and Drug Abuse, March 1999.
3. These percentages are based on all students, including those who said they did not know what their parents attitudes were.

Chapter 4. Conclusions

Since its inception in 1990, the Texas Elementary School Survey (along with the Secondary School Survey begun in 1988) has continued to provide educators, prevention specialists, planners, researchers, parents, and the community with information not only on levels of substance use but also on the importance of risk and resiliency factors to prevent substance use.

The 1998 school survey found that among Texas elementary students, 16 percent had smoked or chewed tobacco, 30 percent had used alcohol, 12 percent had sniffed or huffed inhalants, and 4 percent had tried marijuana at least once. Although rates of substance use are still relatively low among elementary students as compared to those in secondary schools, it should be remembered that even low rates of use represent large numbers of students using tobacco, alcohol, and/or drugs. Using an estimate of 891,000 students currently in grades four through six in Texas public schools,[1] this means that about 324,000 elementary schoolchildren have tried one of those substances and about 234,000 have used them during the past school year.

Perhaps the most worrisome recent change in drug use patterns has been the dramatic increase in inhalant use observed between 1996 and 1998.

Heavy drinking among elementary students is a cause for concern. About one in six elementary youths had consumed two or more beers or wine coolers in a row at least once during the 1997–1998 school year. This is a considerable amount for these students, who are younger than twelve, on average. Such behavior is not only potentially hazardous to their health at the present time, but could escalate in later years, placing these youth at risk of alcohol dependence and other adverse consequences of heavy use.

It appears that past-year rates of smoking and drinking have declined slightly over the past few surveys, although heavy drinking of wine coolers has increased among older elementary students. Past-year marijuana use, on the other hand, almost tripled between 1992 and 1996 and the high level continued into 1998. The increase in prevalence of marijuana use among elementary schoolchildren is consistent with that observed among secondary students. Possible reasons for this increase in youthful marijuana use may be a decrease in the perceived danger of using marijuana, an increase in its availability, and an increase in the number of close friends who have used marijuana (see Figure 3.6).

Perhaps the most worrisome recent change in drug use patterns has been the dramatic increase in inhalant use observed between 1996 and 1998. Both lifetime and past-year prevalence of inhalant use have risen by about 2 percentage points since the last survey. Correction fluid and glue continue to be the two most popular inhalant products among elementary students, but inhalant users have been increasingly using multiple types of inhalants over the past few surveys. At the same time, the percentage of elementary students who consider inhalant use to be very dangerous has decreased. A rise in inhalant use since 1996 has also been noted among secondary students.

Since 1994, the opportunity to experiment with tobacco and alcohol that was reported by elementary students has declined slightly, while the opportunity to try inhalants and marijuana has increased. Changes in the past-year prevalence of use of each substance have generally paralleled the changes in availability, with past-year prevalence of tobacco and alcohol declining since 1994 and past-year prevalence of inhalants and marijuana increasing.

Several demographic and social factors were found to be associated with substance use. Grade-level patterns showed that prevalence of substance use increased by grade, with a noticeable jump in substance use between fifth and sixth grades, perhaps due to entry into middle school at that time. Male elementary students had prevalence rates well above those for females for all substances, although the gender gap has been decreasing as girls are becoming increasingly likely to use substances. Hispanic students had higher past-year rates of substance use than African American and Anglo students. Yet, Anglos are increasing their use more rapidly than other students, making racial/ethnic disparities less pronounced.

Students living in two-parent families were less likely than those who did not live with both parents to use substances. Moreover, elementary children from low-income families were more likely to use substances than those from higher-income families, although this association reversed later in high school.

In elementary schools, a large majority of students said that they had received information about drugs and alcohol during the past school year.

Elementary students were more likely to use substances if they had missed class or had disciplinary problems in school, if most of their friends also used substances, if they had ever been offered substances, if they did not think that substances were dangerous, and if they reported parental tolerance of substance use. The increase in marijuana use between 1992 and 1996 and the continuing high level in 1998 seems to have corresponded to an increased availability of marijuana, diminished perceptions of the danger of marijuana use, and an increase in the number of students' close friends who used marijuana.

The 1998 Texas Secondary School Survey found that, over the past decade, older students have been receiving less and less substance abuse information and education through their school. In elementary schools, however, a large majority (92 percent) of students still said that they had received information about drugs and alcohol during the past school year, which means that, at least in the earlier grades, this education is still being imparted to almost all students.

Substance use behavior in the elementary grades predicts similar behavior in secondary school. High school seniors who have used substances say they had begun this use in middle school, on average. The association of peer, parent, and school factors with self-reported substance use in the elementary study is consistent with relationships observed among older students. These results suggest the need for early prevention and intervention efforts to be directed toward preadolescents. These efforts should address the individual, family, peer, and school factors that may lead to the initiation and continuation of adolescent substance use.[2] Youngsters who do not use substances before the age of eighteen are likely to avoid chemical dependency problems for the rest of their lives.[3]

Comparison to a National Survey

The first national survey of drug use among students in grades four through six was conducted in 1997–1998 by the National Parents' Resource Institute for Drug Education (PRIDE).[4] Table 4.1 shows that Texas elementary students had higher levels of past-year substance use for all substances than students nationally. The PRIDE survey also showed that, nationwide as in Texas, the transition from fifth to sixth grade was marked by a significant increase in alcohol and drug use.

Similarly to the Texas findings, the national survey found that students in all three grades greatly overestimated how many of their friends used drugs when compared with actual personal reported use. The misperception that "everyone is doing it" can be a

Table 4.1. Percentage of Elementary Students in Texas and Nationally Who Used Substances in the Past School Year: 1998

	Fourth Graders		Fifth Graders		Sixth Graders		Total	
	USA	Texas	USA	Texas	USA	Texas	USA	Texas
[illegible]	4.1%	5.2%	7.0%	8.1%	14.8%	15.4%	7.6%	9.5%
[illegible]	7.7%	8.4%	8.2%	10.3%	15.0%	15.9%	9.4%	11.5%
[illegible]	2.4%	2.0%	3.7%	4.0%	6.9%	9.1%	4.3%	5.0%
[illegible]	6.3%	7.6%	6.0%	8.1%	7.3%	11.8%	6.4%	9.2%
[illegible]	0.8%	0.9%	1.2%	1.9%	3.7%	5.2%	1.6%	2.5%

powerful motivator for drug use and experimentation in young people who may be particularly vulnerable to peer pressure, and correcting that misperception can be an important strategy toward reducing substance use.

Recommendations

Despite the fact that any substance use among young people is troubling, in 1998, about 74 percent of elementary students reported being completely drug-free during the past year, meaning that they did not use tobacco, alcohol, inhalants, or illicit drugs during the past school year. This was only about 1 percentage point less than the number in 1996, which reflects the rise in inhalant use. A goal should be to increase the number who remain drug-free, by reducing the risk factors and enhancing the resiliency factors that have been noted in this school survey and elsewhere.

This study has identified some demographic, peer, school, and family factors which were associated with prevalence and patterns of use, and this information should be used to tailor education and prevention programs for groups known to be at greatest risk. The survey findings highlight the need to think of substance use among youths as affected by a wide variety of factors. Substance use prevention and intervention efforts must therefore extend their emphasis beyond the individual youth to include parents and schools, and must go beyond explicit anti-drug messages to address social factors such as interpersonal relationships, the value of school attendance and educational success, and resistance to peer pressure.

A goal should be that 100 percent of Texas students in grades K-12 receive comprehensive alcohol, tobacco, and other drug education that has been proven to be effective.

Law enforcement agencies, as well as community groups, should continue to work to enforce prohibitions on the sale of tobacco and alcohol to minors. Parents can play a major role in preventing substance abuse by initiating discussion with their children early in the elementary grades and making sure that their children have no doubt about the parents' disapproval of substance use. Given the association observed between making low academic grades and using substances, children should be encouraged to work hard in school and should receive whatever help they need. Yet, parents and schools should not assume that students who achieve academically are therefore not at risk of substance use. It should be realized that all students are potentially at risk, and classroom drug education and prevention programs should be a school priority. A goal should be that 100 percent of Texas students in grades K-12 receive comprehensive alcohol, tobacco, and other drug education that has been proven to be effective. The National Institute on Drug Abuse (NIDA) has recently published research showing the protective impact of scientifically proven and effective prevention programs. NIDA's *Preventing Drug Use Among Children and Adolescents*[5] provides information on prevention principles for communities, schools, and families.

The Texas Commission on Alcohol and Drug Abuse provides resources and information to help counselors, addiction professionals, educators, and parents who are interested in finding out more about substances of abuse and ways to prevent substance abuse among Texas youth. The TCADA web site is accessible 24 hours a day at www.tcada.state.tx.us and includes recent information on prevention, drugs of abuse, research and epidemiology, library and LitCenter services, and training opportunities.

Endnotes

1. Student enrollment data come from the Public Education Information Management System (PEIMS) of the Texas Education Agency, and are published on its web site at http://www.tea.state.tx.us/peims/pmscore.
2. Marnik Dekimpe, Linda Van de Gucht, Dominique Hanssens, and Keiko Powers, "Long-Run Abstinence After Narcotics Abuse: What Are the Odds?" *Management Science*, 44 (1998): 1476–1492.
3. Office of National Drug Control Policy, *The National Drug Control Strategy: 1998*. Washington, DC: Office of National Drug Control Policy, 1998, p. 31.
4. Results are reported on the PRIDE web site at http://www.prideusa.org.
5. Z. L. Sloboda and Susan David, *Preventing Drug Use Among Children and Adolescents*. Rockville, MD: National Institute on Drug Abuse, 1997, pp. 19-29.

Appendix A. Survey Instrument

TEXAS SCHOOL SURVEY OF SUBSTANCE USE

ELEMENTARY SURVEY INSTRUMENT

1998 VERSION

INTRODUCTION

This is NOT A TEST. There are no right or wrong answers. You should just answer each question by telling the truth.

No one but you will know how you answer the questions.

You DO NOT have to take this survey. If you do not want to answer the questions, work quietly at your desk.

Follow your teacher's instructions carefully.

NOTE: This survey asks some questions about whether you have ever drunk beer, wine coolers, wine, or liquor. **Do not count a taste or sip you may have had of someone else's drink, or wine used in a religious service.** A drink means a can or bottle of beer or wine cooler, a glass of wine, a shot of liquor (like whiskey, vodka, or tequila) or a mixed drink.

DIRECTIONS

- DO NOT write your name anywhere on this booklet.
- Use a NUMBER 2 PENCIL only.
- Fill in only ONE BUBBLE for each part of a question.
- Be sure to read each question carefully.

FOR OFFICE USE ONLY

EXAMPLE QUESTION

IN THE PAST WEEK, on how many DAYS have you used:

	Never heard of it	Not used it	1-2 days	3-4 days	5-7 days
a. Cigarettes	○	○	○	○	●
b. Snuff or Chewing Tobacco	○	○	●	○	○
c. Beer	●	○	○	○	○

CORRECT MARK ● INCORRECT MARKS ✓ ✗ ⊙ ◒

PLEASE DO NOT WRITE IN THIS AREA

1. Are you a:

Boy ○ Girl ○

2. What grade are you in?

4 ○ 5 ○ 6 ○

3. Do you live with both of your parents?

Yes ○ No ○

4. How old are you?

8 or younger ○ 9 ○ 10 ○ 11 ○ 12 ○ 13 or older ○

5. Are you:

White ○ African American ○ Mexican American ○ Asian American ○ Native American ○ Other ○

6. What grades do you usually get?
(ONLY CHOOSE ONE)

Mostly A's ○ Mostly B's ○ Mostly C's ○ Mostly D's ○ Mostly F's ○

7. Have you lived in this town for more than 3 years?

Yes ○ No ○ Don't Know ○

8. Did either of your parents graduate from college?

Yes ○ No ○ Don't Know ○

9. During the current school year, do you qualify for a free or reduced price school lunch?

Yes ○ No ○ Don't Know ○

10. Do one or both of your parents usually attend school-sponsored open houses or PTA meetings?

Yes ○ No ○

Below is a list of things some people sniff to get high. These are called inhalants.

11. Have you EVER sniffed any of the following inhalants to get high?
(DARKEN ONE BUBBLE FOR EACH DRUG)

	Never Used	Used
a. Gasoline to get high	○	○
b. Paint thinner to get high	○	○
c. Glue to get high	○	○
d. Whiteout or correction fluid to get high	○	○
e. Spray paint to get high	○	○
f. Other inhalants to get high	○	○

The following questions ask about drugs people use to get high.

12. How many times have you used any of these drugs?
(DARKEN ONE BUBBLE FOR EACH DRUG)

	Never heard of it	Never used it	1-2 times	3-10 times	11 or more times
a. Cigarettes?	○	○	○	○	○
b. Snuff or Chewing Tobacco?	○	○	○	○	○
c. Beer?	○	○	○	○	○
d. Wine Coolers?	○	○	○	○	○
e. Wine?	○	○	○	○	○
f. Liquor (whiskey, vodka, tequila, etc.)?	○	○	○	○	○
g. Cosma?	○	○	○	○	○
h. Inhalants (whiteout, glue, gas, etc.)?	○	○	○	○	○
i. Marijuana (pot)?	○	○	○	○	○

13. SINCE SCHOOL BEGAN IN THE FALL, how many times have you used:

(DARKEN ONE BUBBLE FOR EACH DRUG)

	Never heard of it	Not used it	Times used since school began in the Fall. 1-2 times	3-10 times	11 or more times
a. Cigarettes?	○	○	○	○	○
b. Snuff or Chewing Tobacco?	○	○	○	○	○
c. Beer?	○	○	○	○	○
d. Wine Coolers?	○	○	○	○	○
e. Wine?	○	○	○	○	○
f. Liquor (whiskey, vodka, tequila, etc.)?	○	○	○	○	○
g. Cosma?	○	○	○	○	○
h. Inhalants (whiteout, glue, gas, etc.)?	○	○	○	○	○
i. Marijuana (pot)?	○	○	○	○	○

14. How old were you when you first used:

(DARKEN ONE BUBBLE FOR EACH DRUG)

	Never heard of it	Never used it	7 or younger	8 years	9 years	10 years	11 years	12 years or older
a. Cigarettes?	○	○	○	○	○	○	○	○
b. Snuff or Chewing Tobacco?	○	○	○	○	○	○	○	○
c. Beer?	○	○	○	○	○	○	○	○
d. Wine Coolers?	○	○	○	○	○	○	○	○
e. Wine?	○	○	○	○	○	○	○	○
f. Liquor (whiskey, vodka, tequila, etc.)?	○	○	○	○	○	○	○	○
g. Cosma?	○	○	○	○	○	○	○	○
h. Inhalants (whiteout, glue, gas, etc.)?	○	○	○	○	○	○	○	○
i. Marijuana (pot)?	○	○	○	○	○	○	○	○

15. About how many of your close friends your age use:

(DARKEN ONE BUBBLE FOR EACH DRUG)

	Never heard of it	None	Some	Most
a. Cigarettes?	○	○	○	○
b. Snuff or Chewing Tobacco?	○	○	○	○
c. Beer?	○	○	○	○
d. Wine Coolers?	○	○	○	○
e. Wine?	○	○	○	○
f. Liquor (whiskey, vodka, tequila, etc.)?	○	○	○	○
g. Cosma?	○	○	○	○
h. Inhalants (whiteout, glue, gas, etc.)?	○	○	○	○
i. Marijuana (pot)?	○	○	○	○

16. Has anyone ever tried to give you:

(DARKEN ONE BUBBLE FOR EACH DRUG)

	Never heard of it	Yes	No
a. Cigarettes?	○	○	○
b. Snuff or Chewing Tobacco?	○	○	○
c. Beer?	○	○	○
d. Wine Coolers?	○	○	○
e. Wine?	○	○	○
f. Liquor (whiskey, vodka, tequila, etc.)?	○	○	○
g. Cosma?	○	○	○
h. Inhalants (whiteout, glue, gas, etc.)?	○	○	○
i. Marijuana (pot)?	○	○	○

PLEASE GO ON TO THE NEXT PAGE

17. When you drink alcohol (beer, wine coolers, wine or liquor), where do you get it?

(DARKEN ONE BUBBLE FOR EACH LINE)

	Don't Drink	Yes	No
a. Get it from home	○	○	○
b. Get it from friends	○	○	○
c. Get it from somewhere else	○	○	○

18. How dangerous do you think it is for kids your age to use:

(DARKEN ONE BUBBLE FOR EACH DRUG)

	Never heard of it	Very dangerous	Dangerous	Not dangerous at all	Don't Know
a. Cigarettes?	○	○	○	○	○
b. Snuff or Chewing Tobacco?	○	○	○	○	○
c. Beer?	○	○	○	○	○
d. Wine Coolers?	○	○	○	○	○
e. Wine?	○	○	○	○	○
f. Liquor (whiskey, vodka, tequila, etc.)?	○	○	○	○	○
g. Cosma?	○	○	○	○	○
h. Inhalants (whiteout, glue, gas, etc.)?	○	○	○	○	○
i. Marijuana (pot)?	○	○	○	○	○

19. SINCE SCHOOL BEGAN IN THE FALL, have you learned about drugs or alcohol from:

(DARKEN ONE BUBBLE FOR EACH LINE)

	Yes	No
a. Your teacher?	○	○
b. A visitor to your class?	○	○
c. An assembly program?	○	○
d. A school counselor?	○	○
e. Someone else at school?	○	○

20. During the past year (12 months), how many times have you had two or more glasses or bottles of these drinks in a row?

(DARKEN ONE BUBBLE FOR EACH DRUG)

	Never	1 time	2 times	3 or more times
a. Beer	○	○	○	○
b. Wine Coolers	○	○	○	○
c. Wine	○	○	○	○
d. Liquor	○	○	○	○

21. Since school began in the Fall, have you skipped school when your parents didn't know?

○ Yes ○ No

22. Since school began in the Fall, have you been sent to anyone like the principal because you did something against the rules?

○ Yes ○ No

23. How do your parents feel about kids your age drinking beer?

They don't like it. ○
They don't care. ○
They think it's O.K. ○
I don't know. ○

24. How do your parents feel about kids your age using marijuana?

They don't like it. ○
They don't care. ○
They think it's O.K. ○
I don't know. ○

THANK YOU for being part of this important project.

PLEASE DO NOT WRITE IN THIS AREA

Mark Reflex - by NCS MM96595-4 654321 ED05 Printed in U.S.A.

Appendix B.
Prevalence Tables

Table B1 **Prevalence and Recency of Substance Use, by Grade: Texas Elementary Students: 1990, 1992, 1994, 1996, and 1998**

	Ever Used 1990	Ever Used 1992	Ever Used 1994	Ever Used 1996	Ever Used 1998	School Year 1990	School Year 1992	School Year 1994	School Year 1996	School Year 1998
TOBACCO	**21.1%**	**18.8%**	**18.9%**	**17.1%**	**16.3%**	**13.3%**	**11.5%**	**12.0%**	**10.8%**	**10.3%**
Grade 4	13.3%	10.8%	11.1%	9.3%	9.3%	8.2%	6.5%	7.1%	5.5%	6.0%
Grade 5	19.8%	18.3%	17.7%	16.3%	15.0%	13.2%	11.9%	10.9%	9.9%	8.9%
Grade 6	30.5%	27.4%	27.9%	25.8%	24.8%	18.7%	16.1%	18.1%	17.0%	16.3%
ALCOHOL	**41.8%**	**33.4%**	**32.6%**	**30.2%**	**29.6%**	**28.8%**	**20.5%**	**22.6%**	**20.5%**	**20.2%**
Grade 4	31.0%	25.2%	25.1%	21.7%	21.5%	21.1%	14.7%	17.3%	14.5%	14.4%
Grade 5	38.5%	28.6%	30.3%	28.6%	28.4%	28.1%	18.0%	20.3%	19.0%	18.8%
Grade 6	56.5%	46.4%	42.5%	40.3%	39.2%	37.7%	28.8%	30.2%	28.1%	27.6%
INHALANTS #	**15.3%**	**16.4%**	**9.8%**	**9.8%**	**12.3%**	**11.4%**	**10.9%**	**5.7%**	**7.1%**	**9.2%**
Grade 4	12.7%	14.6%	8.4%	8.7%	10.4%	9.5%	10.8%	4.2%	6.3%	7.6%
Grade 5	9.6%	10.5%	8.0%	8.3%	11.1%	7.1%	7.1%	4.8%	6.2%	8.1%
Grade 6	24.0%	24.0%	13.0%	12.4%	15.4%	17.8%	14.8%	8.0%	8.8%	11.8%
MARIJUANA	**2.7%**	**1.7%**	**5.6%**	**4.0%**	**3.6%**	**1.8%**	**1.0%**	**1.9%**	**2.7%**	**2.6%**
Grade 4	1.1%	0.8%	3.5%	1.7%	1.2%	0.7%	0.4%	0.7%	0.9%	0.9%
Grade 5	1.8%	0.9%	4.6%	2.9%	2.6%	1.3%	0.6%	1.2%	1.8%	1.9%
Grade 6	5.4%	3.4%	8.8%	7.3%	7.2%	3.6%	2.0%	3.7%	5.4%	5.2%

Adjusted, based on all data from the survey, to include all appropriate responses.

Table B2 **Prevalence and Recency of Substance Use, by Grade: Texas Elementary Students, 1998**

	Ever Used	School Year	Not Past Year	Never Used
TOBACCO	**16.3%**	**10.3%**	**6.0%**	**83.7%**
Grade 4	9.3%	6.0%	3.4%	90.7%
Grade 5	15.0%	8.9%	6.1%	85.0%
Grade 6	24.8%	16.3%	8.5%	75.2%
ALCOHOL	**29.6%**	**20.2%**	**9.4%**	**70.4%**
Grade 4	21.5%	14.4%	7.1%	78.5%
Grade 5	28.4%	18.8%	9.7%	71.6%
Grade 6	39.2%	27.6%	11.6%	60.8%
INHALANTS	**12.3%**	**9.2%**	**3.1%**	**87.7%**
Grade 4	10.4%	7.6%	2.8%	89.6%
Grade 5	11.1%	8.1%	2.9%	88.9%
Grade 6	15.4%	11.8%	3.6%	84.6%
MARIJUANA	**3.6%**	**2.6%**	**1.0%**	**96.4%**
Grade 4	1.2%	0.9%	0.4%	98.8%
Grade 5	2.6%	1.9%	0.7%	97.4%
Grade 6	7.2%	5.2%	2.0%	92.8%

BEST COPY AVAILABLE

Table B3 **Prevalence and Recency of Substance Use, by Grade: Texas Male Elementary Students, 1998**

	Ever Used	School Year	Not Past Year	Never Used
TOBACCO	**19.1%**	**11.6%**	**7.4%**	**80.9%**
Grade 4	11.5%	7.3%	4.3%	88.5%
Grade 5	18.4%	10.7%	7.7%	81.6%
Grade 6	27.8%	17.2%	10.5%	72.2%
ALCOHOL	**33.5%**	**22.4%**	**11.1%**	**66.5%**
Grade 4	25.3%	17.0%	8.4%	74.7%
Grade 5	33.3%	21.7%	11.6%	66.7%
Grade 6	42.2%	28.7%	13.5%	57.8%
INHALANTS	**13.9%**	**10.1%**	**3.8%**	**86.1%**
Grade 4	12.5%	9.0%	3.5%	87.5%
Grade 5	13.1%	9.4%	3.7%	86.9%
Grade 6	16.2%	12.0%	4.3%	83.8%
MARIJUANA	**4.7%**	**3.3%**	**1.3%**	**95.3%**
Grade 4	1.7%	1.2%	0.5%	98.3%
Grade 5	3.5%	2.6%	1.0%	96.5%
Grade 6	8.9%	6.3%	2.6%	91.1%

Table B4 **Prevalence and Recency of Substance Use, by Grade: Texas Female Elementary Students, 1998**

	Ever Used	School Year	Not Past Year	Never Used
TOBACCO	**13.5%**	**9.0%**	**4.5%**	**86.5%**
Grade 4	7.1%	4.7%	2.4%	92.9%
Grade 5	11.6%	7.1%	4.6%	88.4%
Grade 6	22.0%	15.5%	6.5%	78.0%
ALCOHOL	**25.8%**	**18.1%**	**7.7%**	**74.2%**
Grade 4	17.7%	11.9%	5.8%	82.3%
Grade 5	23.8%	15.9%	7.8%	76.2%
Grade 6	36.3%	26.6%	9.6%	63.7%
INHALANTS	**10.6%**	**8.2%**	**2.4%**	**89.4%**
Grade 4	8.3%	6.3%	2.0%	91.7%
Grade 5	9.1%	6.8%	2.3%	90.9%
Grade 6	14.5%	11.6%	2.9%	85.5%
MARIJUANA	**2.7%**	**1.9%**	**0.7%**	**97.3%**
Grade 4	0.8%	0.6%	0.2%	99.2%
Grade 5	1.8%	1.3%	0.5%	98.2%
Grade 6	5.4%	4.0%	1.4%	94.6%

BEST COPY AVAILABLE

Table B5 **Prevalence and Recency of Substance Use, by Grade: Texas Anglo Elementary Students, 1998**

	Ever Used	School Year	Not Past Year	Never Used
TOBACCO	**15.6%**	**9.9%**	**5.7%**	**84.4%**
Grade 4	9.2%	5.8%	3.4%	90.8%
Grade 5	13.6%	8.0%	5.6%	86.4%
Grade 6	23.6%	15.6%	8.1%	76.4%
ALCOHOL	**24.0%**	**16.3%**	**7.7%**	**76.0%**
Grade 4	17.6%	11.7%	5.9%	82.4%
Grade 5	21.8%	13.8%	7.9%	78.2%
Grade 6	32.4%	23.1%	9.3%	67.6%
INHALANTS	**10.5%**	**7.8%**	**2.6%**	**89.5%**
Grade 4	9.4%	7.0%	2.4%	90.6%
Grade 5	9.2%	6.8%	2.4%	90.8%
Grade 6	12.6%	9.5%	3.1%	87.4%
MARIJUANA	**2.7%**	**2.0%**	**0.8%**	**97.3%**
Grade 4	1.0%	0.7%	0.3%	99.0%
Grade 5	1.9%	1.2%	0.7%	98.1%
Grade 6	5.2%	3.9%	1.3%	94.8%

Table B6 **Prevalence and Recency of Substance Use, by Grade: Texas African American Elementary Students, 1998**

	Ever Used	School Year	Not Past Year	Never Used
TOBACCO	**14.6%**	**8.0%**	**6.6%**	**85.4%**
Grade 4	9.9%	6.2%	3.7%	90.1%
Grade 5	14.3%	6.9%	7.4%	85.7%
Grade 6	20.7%	11.5%	9.1%	79.3%
ALCOHOL	**35.8%**	**23.0%**	**12.8%**	**64.2%**
Grade 4	29.3%	19.0%	10.4%	70.7%
Grade 5	36.2%	23.3%	12.9%	63.8%
Grade 6	43.2%	27.5%	15.7%	56.8%
INHALANTS	**9.9%**	**7.2%**	**2.7%**	**90.1%**
Grade 4	8.2%	6.1%	2.0%	91.8%
Grade 5	9.4%	6.6%	2.8%	90.6%
Grade 6	12.5%	9.1%	3.4%	87.5%
MARIJUANA	**2.7%**	**1.8%**	**0.9%**	**97.3%**
Grade 4	1.2%	0.9%	0.3%	98.8%
Grade 5	1.7%	1.0%	0.7%	98.3%
Grade 6	5.7%	3.8%	2.0%	94.3%

BEST COPY AVAILABLE

Table B7 **Prevalence and Recency of Substance Use, by Grade: Texas Hispanic Elementary Students, 1998**

	Ever Used	School Year	Not Past Year	Never Used
TOBACCO	**18.7%**	**12.5%**	**6.2%**	**81.3%**
Grade 4	9.6%	6.3%	3.3%	90.4%
Grade 5	16.9%	10.8%	6.1%	83.1%
Grade 6	29.8%	20.6%	9.2%	70.2%
ALCOHOL	**33.4%**	**23.8%**	**9.5%**	**66.6%**
Grade 4	22.0%	15.5%	6.5%	78.0%
Grade 5	31.7%	22.0%	9.7%	68.3%
Grade 6	46.6%	34.2%	12.4%	53.4%
INHALANTS	**14.9%**	**11.3%**	**3.6%**	**85.1%**
Grade 4	11.5%	8.4%	3.1%	88.5%
Grade 5	13.5%	10.1%	3.4%	86.5%
Grade 6	19.9%	15.6%	4.3%	80.1%
MARIJUANA	**5.3%**	**3.8%**	**1.4%**	**94.7%**
Grade 4	1.5%	1.0%	0.5%	98.5%
Grade 5	3.9%	3.0%	0.9%	96.1%
Grade 6	10.5%	7.6%	2.9%	89.5%

BEST COPY AVAILABLE

Table B8 **Prevalence and Recency of Substance Use, by Grade: Texas Elementary Students Who Reported Earning A's/B's, 1998**

	Ever Used	School Year	Not Past Year	Never Used
TOBACCO	**14.5%**	**8.9%**	**5.6%**	**85.5%**
Grade 4	8.7%	5.4%	3.3%	91.3%
Grade 5	13.5%	7.8%	5.7%	86.5%
Grade 6	21.8%	13.8%	8.0%	78.2%
ALCOHOL	**27.4%**	**18.3%**	**9.1%**	**72.6%**
Grade 4	20.1%	13.1%	7.1%	79.9%
Grade 5	26.6%	17.4%	9.2%	73.4%
Grade 6	36.0%	24.8%	11.2%	64.0%
INHALANTS	**11.1%**	**8.2%**	**2.8%**	**88.9%**
Grade 4	9.7%	7.2%	2.6%	90.3%
Grade 5	10.0%	7.3%	2.7%	90.0%
Grade 6	13.6%	10.3%	3.3%	86.4%
MARIJUANA	**2.8%**	**1.9%**	**0.9%**	**97.2%**
Grade 4	1.0%	0.7%	0.3%	99.0%
Grade 5	2.2%	1.5%	0.7%	97.8%
Grade 6	5.3%	3.6%	1.7%	94.7%

Table B9 **Prevalence and Recency of Substance Use, by Grade: Texas Elementary Students Who Reported Earning C's, D's, or F's, 1998**

	Ever Used	School Year	Not Past Year	Never Used
TOBACCO	**24.2%**	**16.5%**	**7.7%**	**75.8%**
Grade 4	12.8%	9.0%	3.9%	87.2%
Grade 5	21.6%	13.5%	8.1%	78.4%
Grade 6	36.4%	25.8%	10.6%	63.6%
ALCOHOL	**39.6%**	**28.7%**	**10.9%**	**60.4%**
Grade 4	28.3%	20.8%	7.5%	71.7%
Grade 5	36.8%	24.9%	11.9%	63.2%
Grade 6	51.6%	38.7%	12.9%	48.4%
INHALANTS	**17.5%**	**13.3%**	**4.3%**	**82.5%**
Grade 4	13.5%	10.0%	3.5%	86.5%
Grade 5	16.1%	11.7%	4.4%	83.9%
Grade 6	22.2%	17.4%	4.7%	77.8%
MARIJUANA	**7.6%**	**5.8%**	**1.8%**	**92.4%**
Grade 4	2.6%	1.9%	0.8%	97.4%
Grade 5	4.8%	3.8%	1.1%	95.2%
Grade 6	14.1%	10.9%	3.2%	85.9%

BEST COPY AVAILABLE

Table B10 **Prevalence and Recency of Substance Use, by Grade: Texas Elementary Students Who Lived With Both Parents, 1998**

	Ever Used	School Year	Not Past Year	Never Used
TOBACCO	**13.1%**	**8.2%**	**4.9%**	**86.9%**
Grade 4	7.4%	4.8%	2.7%	92.6%
Grade 5	12.5%	7.2%	5.3%	87.5%
Grade 6	19.9%	13.0%	6.9%	80.1%
ALCOHOL	**25.5%**	**17.5%**	**8.0%**	**74.5%**
Grade 4	18.4%	12.5%	5.9%	81.6%
Grade 5	24.6%	16.6%	8.0%	75.4%
Grade 6	34.0%	23.8%	10.2%	66.0%
INHALANTS	**11.4%**	**8.5%**	**2.8%**	**88.6%**
Grade 4	10.3%	7.5%	2.7%	89.7%
Grade 5	10.4%	7.8%	2.6%	89.6%
Grade 6	13.7%	10.5%	3.2%	86.3%
MARIJUANA	**2.6%**	**1.8%**	**0.8%**	**97.4%**
Grade 4	0.8%	0.5%	0.3%	99.2%
Grade 5	2.1%	1.5%	0.6%	97.9%
Grade 6	5.1%	3.5%	1.6%	94.9%

Table B11 **Prevalence and Recency of Substance Use, by Grade: Texas Elementary Students Not Living With Both Parents, 1998**

	Ever Used	School Year	Not Past Year	Never Used
TOBACCO	**22.5%**	**14.5%**	**8.1%**	**77.5%**
Grade 4	13.4%	8.6%	4.8%	86.6%
Grade 5	19.8%	12.0%	7.8%	80.2%
Grade 6	33.7%	22.3%	11.5%	66.3%
ALCOHOL	**37.8%**	**25.6%**	**12.2%**	**62.2%**
Grade 4	27.9%	18.5%	9.5%	72.1%
Grade 5	36.1%	23.2%	13.0%	63.9%
Grade 6	48.6%	34.7%	13.9%	51.4%
INHALANTS	**14.0%**	**10.4%**	**3.6%**	**86.0%**
Grade 4	10.7%	7.9%	2.8%	89.3%
Grade 5	12.4%	8.8%	3.6%	87.6%
Grade 6	18.5%	14.2%	4.3%	81.5%
MARIJUANA	**5.7%**	**4.2%**	**1.5%**	**94.3%**
Grade 4	2.2%	1.6%	0.6%	97.8%
Grade 5	3.6%	2.6%	1.0%	96.4%
Grade 6	10.9%	8.2%	2.7%	89.1%

BEST COPY AVAILABLE

Table B12 **Prevalence and Recency of Substance Use, by Grade: Texas Elementary Students Living in Town More Than Three Years, 1998**

	Ever Used	School Year	Not Past Year	Never Used
TOBACCO	16.2%	10.3%	5.8%	83.8%
Grade 4	8.8%	5.6%	3.2%	91.2%
Grade 5	14.9%	8.8%	6.1%	85.1%
Grade 6	24.5%	16.3%	8.2%	75.5%
ALCOHOL	30.0%	20.6%	9.3%	70.0%
Grade 4	21.0%	14.2%	6.8%	79.0%
Grade 5	28.8%	19.2%	9.6%	71.2%
Grade 6	39.8%	28.2%	11.6%	60.2%
INHALANTS	12.2%	9.2%	3.1%	87.8%
Grade 4	10.2%	7.5%	2.7%	89.8%
Grade 5	11.0%	8.1%	2.9%	89.0%
Grade 6	15.5%	11.8%	3.7%	84.5%
MARIJUANA	3.7%	2.7%	1.0%	96.3%
Grade 4	1.1%	0.8%	0.3%	98.9%
Grade 5	2.8%	2.0%	0.8%	97.2%
Grade 6	7.0%	5.1%	2.0%	93.0%

Table B13 **Prevalence and Recency of Substance Use, by Grade: Texas Elementary Students Living in Town Less Than Three Years, 1998**

	Ever Used	School Year	Not Past Year	Never Used
TOBACCO	18.3%	10.9%	7.4%	81.7%
Grade 4	12.0%	7.4%	4.6%	88.0%
Grade 5	16.4%	9.5%	6.9%	83.6%
Grade 6	27.2%	16.1%	11.1%	72.8%
ALCOHOL	29.5%	19.1%	10.4%	70.5%
Grade 4	24.3%	15.2%	9.1%	75.7%
Grade 5	27.5%	17.6%	9.9%	72.5%
Grade 6	37.1%	24.8%	12.3%	62.9%
INHALANTS	12.5%	9.5%	3.0%	87.5%
Grade 4	11.1%	8.3%	2.7%	88.9%
Grade 5	11.9%	8.7%	3.3%	88.1%
Grade 6	14.6%	11.5%	3.1%	85.4%
MARIJUANA	3.5%	2.5%	1.0%	96.5%
Grade 4	1.4%	0.9%	0.4%	98.6%
Grade 5	2.2%	1.6%	0.6%	97.8%
Grade 6	7.2%	5.1%	2.0%	92.8%

BEST COPY AVAILABLE

Table B14 **Prevalence and Recency of Substance Use, by Grade: Texas Elementary Students Having Families with Lower Incomes, 1998**

	Ever Used	School Year	Not Past Year	Never Used
TOBACCO	**18.8%**	**11.9%**	**6.9%**	**81.2%**
Grade 4	11.6%	7.2%	4.4%	88.4%
Grade 5	17.5%	10.5%	7.0%	82.5%
Grade 6	28.2%	18.8%	9.4%	71.8%
ALCOHOL	**34.4%**	**23.5%**	**10.9%**	**65.6%**
Grade 4	26.2%	17.7%	8.5%	73.8%
Grade 5	33.3%	22.0%	11.3%	66.7%
Grade 6	44.8%	31.7%	13.1%	55.2%
INHALANTS	**13.4%**	**9.9%**	**3.5%**	**86.6%**
Grade 4	11.0%	8.0%	3.0%	89.0%
Grade 5	12.3%	8.9%	3.4%	87.7%
Grade 6	17.1%	13.0%	4.1%	82.9%
MARIJUANA	**4.6%**	**3.3%**	**1.3%**	**95.4%**
Grade 4	1.7%	1.2%	0.5%	98.3%
Grade 5	3.3%	2.4%	0.9%	96.7%
Grade 6	9.0%	6.4%	2.6%	91.0%

Table B15 **Prevalence and Recency of Substance Use, by Grade: Texas Elementary Students Having Families with Higher Incomes, 1998**

	Ever Used	School Year	Not Past Year	Never Used
TOBACCO	**15.6%**	**10.0%**	**5.6%**	**84.4%**
Grade 4	7.7%	5.2%	2.5%	92.3%
Grade 5	13.9%	8.4%	5.5%	86.1%
Grade 6	23.4%	15.3%	8.1%	76.6%
ALCOHOL	**27.6%**	**18.9%**	**8.7%**	**72.4%**
Grade 4	18.8%	12.5%	6.2%	81.2%
Grade 5	25.4%	17.1%	8.3%	74.6%
Grade 6	36.4%	25.4%	11.0%	63.6%
INHALANTS	**11.8%**	**8.9%**	**2.9%**	**88.2%**
Grade 4	9.4%	6.9%	2.6%	90.6%
Grade 5	10.6%	7.8%	2.8%	89.4%
Grade 6	14.7%	11.3%	3.4%	85.3%
MARIJUANA	**3.3%**	**2.4%**	**0.9%**	**96.7%**
Grade 4	1.0%	0.6%	0.4%	99.0%
Grade 5	2.4%	1.7%	0.7%	97.6%
Grade 6	5.9%	4.3%	1.6%	94.1%

BEST COPY AVAILABLE

Appendix C.
Additional Tables

Table C1 **Percentage of Texas Elementary Students Who Had Ever Used Specific Inhalants: 1998**

Correction Fluid/Liquid Paper

	Ever Used	Not Used
All Elementary Students	4.8%	95.2%
Grade 4	2.7%	97.3%
Grade 5	3.8%	96.2%
Grade 6	7.8%	92.2%

Gasoline

	Ever Used	Not Used
All Elementary Students	3.1%	96.9%
Grade 4	3.1%	96.9%
Grade 5	2.8%	97.2%
Grade 6	3.3%	96.7%

Glue

	Ever Used	Not Used
All Elementary Students	4.5%	95.5%
Grade 4	4.8%	95.2%
Grade 5	3.7%	96.3%
Grade 6	5.2%	94.8%

Paint Thinner

	Ever Used	Not Used
All Elementary Students	2.3%	97.7%
Grade 4	2.4%	97.6%
Grade 5	1.9%	98.1%
Grade 6	2.8%	97.2%

Spray Paint

	Ever Used	Not Used
All Elementary Students	3.5%	96.5%
Grade 4	3.4%	96.6%
Grade 5	3.0%	97.0%
Grade 6	4.1%	95.9%

Other Inhalants

	Ever Used	Not Used
All Elementary Students	5.7%	94.3%
Grade 4	4.3%	95.7%
Grade 5	5.0%	95.0%
Grade 6	7.6%	92.4%

BEST COPY AVAILABLE

Table C2 **Texas Elementary Student Responses to the Question, "About How Many of Your Friends Use ...": 1998**

	Never Heard of	None	Some	Most
Tobacco (Cigarettes, Smokeless Tobacco)?				
All Elementary Students	2.0%	68.2%	25.6%	4.2%
Grade 4	2.9%	77.8%	16.9%	2.4%
Grade 5	2.0%	70.8%	24.1%	3.0%
Grade 6	1.1%	55.7%	36.0%	7.1%
Cigarettes?				
All Elementary Students	3.3%	68.2%	24.8%	3.8%
Grade 4	4.7%	77.4%	15.9%	2.1%
Grade 5	3.2%	70.8%	23.4%	2.6%
Grade 6	1.8%	56.1%	35.4%	6.7%
Smokeless Tobacco?				
All Elementary Students	4.5%	87.5%	6.9%	1.1%
Grade 4	7.2%	87.4%	4.6%	0.8%
Grade 5	3.8%	89.4%	5.9%	0.9%
Grade 6	2.4%	85.8%	10.3%	1.5%
Alcohol (Beer, Wine Coolers, Wine, Liquor)?				
All Elementary Students	1.6%	63.8%	26.7%	7.9%
Grade 4	2.1%	72.5%	20.6%	4.7%
Grade 5	1.6%	66.0%	26.1%	6.3%
Grade 6	1.0%	52.8%	33.6%	12.6%
Beer?				
All Elementary Students	1.7%	71.2%	22.2%	4.8%
Grade 4	2.4%	77.9%	16.9%	2.8%
Grade 5	1.7%	73.5%	20.8%	3.9%
Grade 6	1.1%	62.1%	29.1%	7.7%
Wine Coolers?				
All Elementary Students	7.7%	70.0%	17.4%	4.8%
Grade 4	11.8%	75.1%	10.7%	2.4%
Grade 5	7.4%	72.2%	16.5%	3.9%
Grade 6	3.9%	62.7%	25.2%	8.2%
Wine?				
All Elementary Students	2.9%	80.9%	13.4%	2.7%
Grade 4	4.3%	85.4%	8.7%	1.6%
Grade 5	2.8%	83.1%	12.1%	2.0%
Grade 6	1.5%	74.3%	19.5%	4.6%
Liquor?				
All Elementary Students	7.0%	80.9%	9.7%	2.4%
Grade 4	11.7%	82.4%	4.6%	1.3%
Grade 5	6.1%	84.1%	8.4%	1.4%
Grade 6	3.2%	76.1%	16.3%	4.4%
Inhalants?				
All Elementary Students	6.0%	79.5%	11.5%	3.0%
Grade 4	9.6%	82.4%	6.6%	1.5%
Grade 5	5.0%	82.1%	10.3%	2.5%
Grade 6	3.2%	73.9%	17.7%	5.1%
Marijuana?				
All Elementary Students	7.2%	80.5%	9.2%	3.0%
Grade 4	12.8%	81.5%	4.4%	1.3%
Grade 5	5.6%	85.1%	7.5%	1.8%
Grade 6	3.2%	75.2%	15.7%	5.9%

BEST COPY AVAILABLE

Table C3 **Texas Elementary Student Responses to the Question, "How Dangerous Do You Think It Is For Kids Your Age to Use...": 1998**

	Never Heard of	Very Dangerous	Dangerous	Not At All Dangerous	Do Not Know
Tobacco (Cigarettes, Smokeless Tobacco)?					
All Elementary Students	1.4%	66.9%	24.3%	1.7%	5.6%
Grade 4	2.1%	73.9%	17.3%	1.4%	5.3%
Grade 5	1.4%	68.7%	23.3%	1.4%	5.3%
Grade 6	0.9%	57.8%	32.6%	2.4%	6.4%
Cigarettes?					
All Elementary Students	2.5%	53.3%	33.9%	2.4%	7.9%
Grade 4	3.4%	62.3%	25.2%	1.7%	7.3%
Grade 5	2.5%	54.1%	34.0%	1.9%	7.4%
Grade 6	1.5%	43.1%	42.7%	3.7%	9.0%
Smokeless Tobacco?					
All Elementary Students	3.2%	59.3%	25.9%	2.3%	9.3%
Grade 4	5.4%	64.9%	19.4%	1.7%	8.6%
Grade 5	2.6%	61.7%	25.2%	2.0%	8.6%
Grade 6	1.5%	51.2%	33.2%	3.2%	10.9%
Alcohol (Beer, Wine Coolers, Wine, Liquor)?					
All Elementary Students	1.1%	66.7%	23.6%	3.0%	5.6%
Grade 4	1.5%	72.4%	18.0%	2.4%	5.7%
Grade 5	1.1%	68.3%	23.0%	2.4%	5.2%
Grade 6	0.7%	59.4%	29.8%	4.2%	5.9%
Beer?					
All Elementary Students	1.1%	43.9%	38.8%	6.7%	9.5%
Grade 4	1.6%	50.2%	33.1%	5.2%	10.0%
Grade 5	1.1%	44.6%	39.7%	5.4%	9.1%
Grade 6	0.7%	36.9%	43.7%	9.4%	9.4%
Wine Coolers?					
All Elementary Students	6.8%	37.4%	31.8%	10.7%	13.3%
Grade 4	10.0%	45.7%	24.9%	6.7%	12.7%
Grade 5	6.7%	37.6%	32.9%	9.9%	12.9%
Grade 6	3.5%	28.7%	37.8%	15.7%	14.2%
Wine?					
All Elementary Students	1.7%	44.1%	34.3%	7.8%	12.0%
Grade 4	2.7%	51.9%	28.6%	5.4%	11.4%
Grade 5	1.6%	45.1%	34.9%	6.9%	11.6%
Grade 6	0.9%	35.2%	39.6%	11.2%	13.1%
Liquor?					
All Elementary Students	5.0%	61.9%	22.4%	2.5%	8.2%
Grade 4	8.5%	65.6%	16.0%	1.8%	8.1%
Grade 5	4.4%	63.8%	22.2%	2.0%	7.7%
Grade 6	2.0%	56.3%	29.2%	3.7%	8.8%
Inhalants?					
All Elementary Students	4.2%	63.1%	20.9%	3.2%	8.6%
Grade 4	7.3%	63.0%	17.8%	2.6%	9.2%
Grade 5	3.6%	64.8%	20.7%	2.8%	8.2%
Grade 6	1.8%	61.5%	24.3%	4.1%	8.3%
Marijuana?					
All Elementary Students	5.3%	78.2%	9.4%	1.7%	5.5%
Grade 4	10.0%	75.2%	7.9%	1.1%	5.8%
Grade 5	3.8%	81.2%	8.7%	1.3%	5.0%
Grade 6	2.0%	78.2%	11.6%	2.6%	5.5%

BEST COPY AVAILABLE

Table C4 **Texas Elementary Student Responses to the Question, "Since School Began in the Fall, Have You Learned About Drugs or Alcohol from the Following School Sources,": 1990-1998**

An Assembly Program

	1990	1992	1994	1996	1998
All Students	70%	63%	69%	63%	63%
Grade 4	70%	67%	70%	64%	62%
Grade 5	75%	67%	70%	68%	67%
Grade 6	64%	55%	67%	58%	60%

A Guidance Counselor

	1990	1992	1994	1996	1998
All Students	48%	44%	57%	55%	55%
Grade 4	50%	51%	68%	63%	62%
Grade 5	51%	44%	58%	59%	58%
Grade 6	41%	38%	46%	43%	46%

Visitor to Class

	1990	1992	1994	1996	1998
All Students	65%	63%	68%	63%	67%
Grade 4	62%	62%	66%	60%	63%
Grade 5	72%	73%	74%	72%	75%
Grade 6	59%	53%	64%	57%	64%

Your Teacher

	1990	1992	1994	1996	1998
All Students	88%	86%	82%	75%	72%
Grade 4	88%	85%	84%	76%	72%
Grade 5	87%	86%	84%	75%	73%
Grade 6	NA	NA	78%	74%	71%

Some Other School Source

	1990	1992	1994	1996	1998
All Students	55%	49%	50%	48%	45%
Grade 4	57%	51%	52%	48%	43%
Grade 5	56%	51%	50%	49%	47%
Grade 6	49%	46%	49%	46%	45%

Any School Source

	1990	1992	1994	1996	1998
All Students	95%	93%	9[illegible]%	92%	92%
Grade 4	97%	95%	94%	91%	90%
Grade 5	98%	97%	96%	94%	94%
Grade 6	90%	88%	93%	90%	91%

Table C5 **Percentage of Texas Elementary Students Who Consumed Two or More Drinks in a Row at Least Once During the Past School Year**

Grades 4 & 5 (combined)

	1990	1992	1994	1996	1998
Beer	25%	15%	15%	14%	13%
Wine Coolers	20%	14%	14%	13%	12%
Wine	13%	10%	10%	9%	9%
Liquor	7%	6%	6%	4%	5%

Grade 6 Only

	1994	1996	1998
Beer	24%	20%	20%
Wine Coolers	17%	23%	22%
Wine	24%	16%	17%
Liquor	13%	11%	12%

BEST COPY AVAILABLE

Appendix D. Description of Survey and Limitations

Appendix G. Description of Survey and Limitations of Study

A Brief History

When the first Texas School Survey of substance use among secondary school students was conducted in 1988, it became clear that many students had started using substances while still in elementary school. In that year, a significant proportion of seventh grade inhalant users claimed they had first used inhalants when they were ten years old or younger. However, the secondary school instrument was not appropriate for surveying elementary students. At six pages, it was too long to be completed by younger students in the required 15 to 20 minutes, and it asked about several substances rarely used by elementary students such as hallucinogens, uppers, and downers.

Early in 1989, the Texas Commission on Alcohol and Drug Abuse (TCADA) and the Public Policy Research Institute (PPRI) at Texas A&M University developed a survey instrument suitable for elementary students which maintained compatibility with the secondary instrument, but asked fewer questions about fewer kinds of drugs and included fewer response categories. The elementary survey was first conducted in 1990, and has been carried out every other year since then, in the same years as the secondary survey.

Four new questions were added to the 1992 elementary survey. In order to provide more information about the student's socioeconomic status, two questions asked students whether their parents had graduated from college and in what kind of home (i.e., house, apartment/duplex, or mobile home) they lived. The other two new questions addressed issues identified by school district personnel as being of particular interest. They asked students where they got alcoholic beverages and how long they had attended school in the same school district.

The 1994 elementary survey content remained basically the same as the 1992 survey, but had one new question. The question which indicated the student's socioeconomic status was changed from the type of home in which the student lived to whether or not she/he qualified for a free or reduced-price school lunch. Also, the wording for the responses that followed the question about specific inhalant use was modified. The question read, "Have you ever sniffed any of the following inhalants to get high?" The phrase "to get high" was added to the responses. For example, the response which in 1992 read "Gasoline" was changed to "Gasoline *to get high*;" the response "Paint thinner" was changed to "Paint thinner *to get high*." It was thought that on previous surveys, some students may have answered that they had used a specific inhalant when they had sniffed it unintentionally without intending to get high.

Also, the question regarding the use of substances during the school year was modified to read "*Since school began in the fall*, how many times have you used [substances]?" In addition, one of the responses to the question was changed from "Never used it" to "Not used it." It should be noted that the modifications to the 1994 survey instrument possibly may have affected some of the variations in prevalence rates from 1992 to 1994, especially in the case of inhalants.

The 1996 elementary survey contained the same questions as those in 1994, except that some small changes for the responses were made. First, the ethnic subgroups of "Asian American" and "Native American" were added to the responses in the race/ethnic question (Appendix A, question 5). Secondly, the volatile substance of spray paint was added to the responses in question number 11 which queried students about specific inhalant use; the new response read, "Spray paint to get high."

In 1998, one modification and one addition to the survey instrument were made. The modification was to remove gin from the list of alcoholic beverages and to include tequila. Additionally, a question was included in the 1998 survey that solicited information on parental involvement in school-sponsored open houses and PTA meetings. The complete 1998 survey instrument is contained in Appendix A.

Survey Methods

Sampling

The 1998 Texas School Survey was administered to 92,858 elementary students in 66 school districts statewide. As will be discussed below, some of the questionnaires were excluded from the results; therefore, this report is based on data collected from 91,168 elementary students (Table D1).

Students were randomly selected from school districts throughout the state using a multi-stage probability design. Stage one was the selection of districts; stage two, the

Table D1 **Total Number of Respondents to the 1998 Texas Elementary School Survey by Grade and Demographic Characteristics**

	Grade4	Grade 5	Grade 6	Total
Total Sample				
Students	28,554	32,274	30,340	91,168
Gender				
Males	14,243	15,896	15,051	45,190
Females	14,261	16,312	15,206	45,779
Race/Ethnicity				
Anglos	9,450	10,355	10,484	30,289
African Americans	3,015	3,576	3,008	9,599
Hispanics	12,670	14,876	13,520	41,266
Asian Americans	533	622	764	1,919
Native Americans	531	572	404	1,507
Others	1,444	1,561	1,489	4,494
Usual Grades				
A's	10,979	11,540	9,989	32,508
B's	12,175	14,477	13,568	40,220
C's	3,757	4,520	4,876	13,153
D's	601	690	867	2,158
F's	421	381	443	1,245
Family Structure				
Live With Both Parents	19,978	72,002	20,064	62,044
Other Family Structures	8,259	9,927	9,977	28,163
Age				
Age 8 or Younger	59	4	3	66
Age 9	8,050	31	5	8,086
Age 10	18,186	8,815	26	27,027
Age 11	1,957	20,494	7,680	30,131
Age 12	65	2,568	19,175	21,808
Age 13 or Older	8	89	3,140	3,237

Note: Numbers may not add to totals due to missing responses for specific variables.

BEST COPY AVAILABLE

selection of schools within the sampled districts; and stage three, the selection of classes within the sampled schools.

Instrumentation

All fourth, fifth, and sixth grade respondents in 1998 were questioned using the elementary survey instrument[1] (see Appendix A). The elementary student instrument is three pages long and covers four types of substances: 1) tobacco (including cigarettes and smokeless tobacco); 2) alcohol (including beer, wine, wine coolers, and liquor); 3) inhalants; and 4) marijuana. A pseudo-drug was also included in the questionnaire to help identify exaggerators and detect invalid responses. Recency of use questions distinguish users who have used in the current school year from those who have used prior to the current school year. Like the secondary instrument, the elementary instrument can be optically scanned and was designed for self-administration in a supervised setting.

Administration

To allow for resolution of scheduling conflicts and other potential difficulties, districts selected for inclusion in the state sample were contacted early on. They were initially notified of the project by mail, followed by a phone call to clarify the study objectives and to discuss in detail how the survey should be administered. Relevant personnel in the selected districts and campuses were provided with complete instructions and materials necessary to administer the survey. Teachers in selected classrooms were given a script to read so that all students would receive a standardized set of instructions. Teachers were also asked to provide information on the number of students that should have taken the survey but were absent, and the number that were present but failed to complete the survey. This information was useful for computing error estimates.

Limitations

Scope

The Texas School Survey results can be generalized only to public school students because only public school students were sampled in this project. Although they are an important component of the youthful population of Texas, neither private school students nor dropouts were represented. This limitation should be kept in mind when considering the implications of these data. The findings in this study, however, do represent reasonable estimates of the extent of substance use among public school students. The survey procedure employed in this research is an appropriate technique for estimating the prevalence and frequency of various forms of drug use in the target population. A survey methodology appears to be the only feasible means for making estimates on these largely clandestine behaviors.

Self-reported Data

Substance use estimates presented in this report are entirely based on self-disclosure. While many studies have established the usefulness of self-reported information for estimating the incidence and prevalence of drug use, the validity of these data ultimately depends on the truthfulness, recall, and comprehension of the respondents. This study was carefully designed to minimize the impact of these potential sources of error. Four percent of the questionnaires from the elementary sample were discarded because students either reported impossibly high levels of substance abuse or claimed to use a non-existent drug. If students failed to report both their age and grade level, the data

were also dropped from the analyses. Other measures to reduce response bias included a full array of instrument construction, testing and review protocols, validity check procedures, and data processing protocols that have been developed over the past nine years on the basis of administering over 2 million surveys to Texas public school students. For further information on these technical matters and tabular information necessary to estimate confidence limits, the reader may consult the separate technical report prepared by PPRI, *Methodology Report for the 1998 Texas School Survey of Substance Use.*[3]

Despite these precautions, some undetected under- and over-reporting may have occurred. However, any differences among subgroups in veracity, recall, or comprehension are likely to have been constant over time. Any reporting bias in the elementary data gathered in the five statewide surveys should be approximately equal in all survey years, making it valid to compare the data across the years.

Sampling Error

The estimates presented in this study are based on a sample and hence are subject to sampling error. This survey was designed and drawn such that confidence limits on all estimates can be ascertained. However, the procedures required to estimate confidence limits in this project are more complex than can be summarized in a document intended for a general readership. Several factors contribute to this complexity:

- *Cluster-sampling:* Entire classrooms (as opposed to individual students) were randomly selected to participate in the survey. Textbook procedures for computing confidence intervals assume random selection of individual respondents, which was not the case for this study.
- *Weighting:* Some categories were oversampled, after which the data were weighted to make the sample precisely reflect the demographic composition of Texas schools. Textbook procedures for computing confidence intervals assume that all observations have equal weight, which was not true for this study.
- *Asymmetric Confidence Intervals:* Many estimates are 5 percent or less and require asymmetric confidence intervals. Asymmetric confidence limits adjust for the fact that the true rate in a population cannot be less than 0 percent or greater than 100 percent. For example, if an estimate was 1 percent, where the computed upper boundary of the 95 percent confidence interval is plus 2 percent, the lower boundary cannot be symmetrical (i.e., minus 2 percent) because it is impossible for fewer than zero people to have the characteristic. Procedures for computing asymmetric confidence intervals ensure that this paradoxical situation does not occur.

These factors must be taken into account to correctly compute confidence intervals on the estimates presented herein. The statistical basis for these computations and estimates of the 95 percent confidence limits for this study are included in the *Methodology Report for the 1998 Texas School Survey of Substance Use.* The technical reader should refer to that document for additional information.

The Texas School Survey is based on a very large sample, and the estimates have a high degree of statistical precision relative to most published survey research that employs cluster sampling. For estimates regarding the elementary school population as a whole, the 95 percent confidence interval is at most plus or minus 1.8 percent. In other

words, if the estimate based on the school survey sample is that 29.2 percent of elementary school students have used a substance, there is a 95 percent chance that the true population rate is between 27.5 percent and 31.0 percent. This estimate of sampling error is conservative for estimates of rates on the elementary school population as a whole. Actual 95 percent confidence intervals on most substances are smaller.

Where rates are presented for subgroups of the elementary school population (e.g., gender, racial/ethnic groups, school grades, etc.) the sampling error is greater because the samples contain fewer observations. For example, the largest 95 percent confidence limit in any grade and on any substance is observed for alcohol in the fifth grade. In this case, the estimate of lifetime prevalence of use is 28.2 percent with the lower and upper boundaries of the 95 percent confidence interval of 26.0 percent and 30.5 percent, respectively. Confidence limits on all other substances in all other grades do not exceed this figure and in most cases are much smaller.

Endnotes

1. In 1990 and 1992, fourth and fifth grade respondents were questioned using the elementary survey instrument, whereas sixth graders were questioned using the secondary survey instrument. The two survey forms covered the same basic topic areas, but in some cases questions were asked differently. In 1994, 1996, and 1998 the elementary survey was administered to fourth, fifth, and sixth graders.
2. Since the school survey samples only in-school students, it is likely that the study underestimates the prevalence of substance use in the adolescent population because school dropouts consistently have shown higher rates of substance use than those staying in school.
3. J. A. Dyer et al., *Texas School Survey of Substance Use 1998: Methodology Report and Validity Analysis* (College Station, Tx.: Public Policy Research Institute, Texas A&M Univer-